INTERNAL CONFLICT IN SHIP REPAIR WORKS: INTRODUCING PFD AS INTERVENTION

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ABSTRACT

Incidences of intergroup conflicts have turned out to be a common problem that occurs in shipyards of the ship repair works industry. This study aimed at examining the possible causes that contribute toward these conflicts occurring and practical solutions to manage the conflicts. Therefore, in order to resolve these conflicts well, what is required is the development of a relevant work process/system that can be implemented within the organisation. This research also identified the causes of conflicts and recommended appropriate solutions. A qualitative research methodology was used to identify practical solutions to address these conflicts. Data were gathered from document reviews, observations, and also interviews. The analysis was done by using Nvivo11. Semi-structured interviews were conducted, which involved staff from the Engineering Department and Production Department. The findings indicated that conflicts are the result of several factors, including age and educational level, which leads to poor communication and poor cooperation among the staff. Meanwhile, poor time management causes poor performance among the staff. The relationship between the Engineering Department and Production Department has been improved by introducing the Production-Friendly Drawing (PFD). The Production Department needs to utilise the PFD in order to ensure that ship repair works are performed in accordance with the "best engineering practice", while the designers in the Engineering Department must ensure that the end-product production drawing is user-friendly and accurate. When PFD is introduced for ship repair works, it is capable to reduce the age and education level gaps between the Engineering Department and Production Department. Further studies may look into the improvements and challenges of PFD in creating sustainable development at the shipyard.

Keywords: conflict, ship repair works, intergroup conflict, production-friendly drawing.

ABSTRAK

Kejadian konflik antara kumpulan telah bertukar menjadi masalah biasa yang berlaku di limbungan kapal dalam industri kerja-kerja pembaikan kapal. Kajian ini bertujuan untuk meneliti sebab-sebab yang mungkin telah menyumbang kepada kejadian konflik tersebut dan mendapatkan penyelesaian yang praktikal untuk mengurus konflik. Oleh itu, untuk menangani konflik ini dengan baik, apa yang diperlukan adalah dengan menghasilkan sistem/proses kerja yang relevan serta dapat dilaksanakan dalam organisasi. Kajian ini juga akan mengenal pasti punca-punca konflik dan mencadangkan penyelesaian yang sesuai. Kaedah penyelidikan kualitatif telah digunakan untuk mengenal pasti penyelesaian yang praktikal bagi menangani konflik berkenaan. Data kajian dikumpul menerusi kajian dokumen, pemerhatian dan juga temubual. Analisis kajian dibuat dengan menggunakan Nvivo11. Temubual separa berstruktur telah diadakan, melibatkan kakitangan dari Jabatan Pengeluaran dan Jabatan Kejuruteraan. Dapatan kajian menunjukkan bahawa konflik adalah terhasil daripada beberapa faktor termasuk umur dan tahap pendidikan yang membawa kepada komunikasi yang lemah dan kurangnya kerjasama sesama warga kerja. Manakala, pengurusan masa yang lemah menyebabkan prestasi yang lemah di kalangan kakitangan. Hubungan antara Jabatan Kejuruteraan dan Jabatan Pengeluaran telah ditambahbaik menerusi pengenalan kepada lukisan mesra pengeluaran (PFD). Jabatan Pengeluaran perlu menggunakan PFD tersebut untuk memastikan bahawa kerja-kerja pembaikan kapal dapat dilaksanakan selaras dengan "amalan kejuruteraan terbaik", manakala pereka bentuk di dalam Jabatan Kejuruteraan mesti memastikan bahawa produk akhir pengeluaran lukisan adalah tepat dan mesra pengguna. Apabila PFD diperkenalkan untuk kerja-kerja pembaikan kapal, ia boleh membantu mengurangkan jurang umur dan tahap pendidikan antara Jabatan Kejuruteraan dan Jabatan Pengeluaran. Kajian lanjut boleh melihat kepada penambahbaikan dan cabaran PFD dalam mewujudkan pembangunan lestari di limbungan kapal.

Kata Kunci: konflik, kerja-kerja pembaikan kapal, konflik antara kumpulan, lukisan mesra pengeluaran.

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LIST OF ABBREVIATIONS

ABS	Asian Business Solution
AR	Action Research
BNS	Boustead Naval Shipyard
BOI	Board of Inquiry
BR	Book of Reference
CE	Concurrent Engineering
CI	Continuous Improvement
DRL	Delivery Request List
DSME	Daewoo Shipbuilding and Marine Engineering
ECP	Engineering Change Proposal
ERM	Enterprise Risk Management
HCM	Human Capital Management
HOD	Head of Department
HOU	Head of Unit
HVAC	Heating Ventilation and Airconditioning
IGC	Intergroup Conflict
KD	Kapal DiRaja
IMP3	Third Industrial Master Plan
LAD	Liquidated and Ascertained Damages
LCS	Littoral Combatant Ship
LTAT	Lembaga Tabung Angkatan Tentera
MARS	Material Management and Planning Software
MARS i154 – E-FMC	Electronic Form Material Creation in the MARS
MDL	Main Defect List
MH	Material Handler
MRO	Maintenance, Repair, and Overhaul
MSS	Mutual Separation Scheme

NGPV	New Generation Patrol Vessel
Nvivo	A qualitative data analysis computer software package.
OC	Organization Conflict
OEM	Original Equipment Manufacturer
PBT	Profit Before Tax
PFD	Production Friendly Drawing
PMT	Project Management Team
PSC-ND	Penang Shipbuilding & Construction – Naval Dockyard
PV	Patrol Vessel
QDA	Qualitative Data Analysis
QE	Quality Environment
Refit	A 12 months ship repair program
RMN	Royal Malaysian Navy
RO	Research Objective
RQ	Research Question
SBSR	Ship Building and Ship Repair
SE	Sequential Engineering
SOP	Standard Operating Procedure
SWBS	Ship Work Breakdown System
TMP	Total Maintenance Package
TMR	Technical Material Requisition
TT2/TT4	List of Spares/List of Raw Material
VO	Variation Order
VP	Variation Proposal

CHAPTER ONE
INTRODUCTION

1.0 Overview

This chapter starts with section 1.1, which explains about the Ship Building and Ship Repair (SBSR) worldwide. Section 1.2 is about company background, section 1.3 is about the background of the research, chapter 1.4 is about problem statement, section 1.5 on research questions, section 1.6 on the significant of the research, section 1.7 on the scope of the research, section 1.8 is about the limitations of the research, section 1.9 the operational definitions and section 1.10 on the organization of the thesis.

1.0 Introduction

The primary focus of this research which is carried out on a shipbuilding and ship repair company is to identify in detail on the conflict that exists in ship repair works, causes of conflict and what is the best intervention to manage the conflict. In general, a shipyard is a place where ships are built, which is also an industrial organization, employing hundreds of workers organized in a hierarchical structure comprising of various working groups. It is an assortment of association, established by individuals with various foundations, proficient capabilities, and abilities, and sometimes extraordinary birthplaces and societies, with the need to seek after one

shared objective and work lined up with the company esteem (Zainal, Nor, Intan, Mahfar, & Jalil, 2015).

Transformation of the shipbuilding business, particularly on the reevaluation of the shipyard spaces of the port urban communities around the globe is an important regional wedge in the twenty-first-century competitive growth strategies. During the last four decades in the European shipbuilding industry, its respective shipyards and port infrastructure have been the locations of large investments that potentially reconstitute and create new forms of social and economic development and thus elevate the position of a particular urban region. (Giovacchini & Sersic, 2012).

The Eisenhower School for National Security and Resource Strategy, National Defense University Fort McNair, Washington, D.C. (2015) revealed that the worldwide ship and vessel constructing industries anticipated the 2014 revenue of $258.1 billion. This industry incorporates the development of boats for consumers, delivers and concentrated vessels for business and government clients, and repair exercises. This represents a normal yearly development of 1.1% in recent years. With a five-year anticipated 1.2% of annualized development, revenues are anticipated to be $274.5 billion in 2019 (Geaney, Jackson, Weissman, & Blackwell, 2015).

South Korea's shipyards are highly efficient, with the world's largest shipyard in Ulsan operated by Hyundai Heavy Industries. South Korea's "big three"

shipbuilders, Hyundai Heavy Industries, Samsung Heavy Industries, and Daewoo Shipbuilding & Marine Engineering, dominate the global shipbuilding industry. Others like STX Shipbuilding, Hyundai Samho Heavy Industries, Hanjin Heavy Industries, and Sungdong Shipbuilding & Marine Engineering are also ranked among the top ten shipbuilders in the world (Zainal et al., 2015).

In general, plan adherence is an essential issue in many shipyards, which may have some of its underlying foundations in errors in workload estimating. However, occupation lengths are the fundamental factors in building up trustworthy production schedules. Since scheduled events are not met regularly, and rescheduling of works is done all too frequently, it takes after that enhanced assurance of employment term is expected to get a smooth flow of construction activity.

There is typically a delay between the achievement of the work and planning of work. Such time defers implies that overwhelming conditions can exist before the administration knows about reality by means of cost reports. The time when restorative moves ought to have been made is already passed, and recuperation measures must be centered around work remaining. This causes a disturbance in the plans for the downstream work (Zainal et al., 2015).

In recent years, the worldwide maritime shipbuilding industry has taken a couple of blows. The Money related emergency that began in 2008, trailed by a slowdown of

the Chinese economy, caused a drop in all out-world shipbuilding orders from around 170 million gross ton in 2007 to 76 million gross ton in 2015 as appeared in Figure 1.1 (Embassy of the Kingdom of the Netherlands & Consulate-General of the Kingdom of the Netherlands, 2016).

Figure 1.1
New Shipbuilding Orders Worldwide
Source: Sector Report Japan: Developments in the Offshore and Shipbuilding Industry

Despite low new build orders and narrower profit margins, shipbuilding continues to be the main revenue generator for the industry. In 2013, from a total of 234 vessels built, 87% were produced in East Malaysia, which is equal to RM3.43 billion in sales, as shown in Figure 1.2. Relatively, in terms of ratio; the number of shipyards

over the number of vessels being built for Peninsular is 1:1 while for East Malaysia it is 1:3.

Figure 1.2
Shipbuilding Performance Graph
Source: Malaysian Shipbuilding/Ship Repair Industry Report 2015/2016

Like other different parts of the world, the Malaysian transportation industry had endured in the midst of the worldwide subsidence and execution declined in significant delivery exchanges. As interest in transportation administrations fell, Shipbuilding and Ship repair (SBSR), industry players were confronted with challenging economic situations.

Despite the challenging market situations and the current Oil and Gas (O&G) part back off, Malaysian SBSR industry remained solid with 2013 revenue recorded at RM8.36 billion; an additional of 14% which is in contrast with the year 2012 as exhibited in Figure 1.3. The revenue was, for the most part, contributed by Boustead

Naval Shipyard (The shipyard) following their recently secured venture to manufacture the Littoral Combatant Ship (LCS) for the Royal Malaysian Naval force (RMN). The proportionate figure well with the aggregate number of workforce in the business, evaluated at 35,000 barring subcontractors' workforce provided to shipyards (Sulaiman et al., 2017).

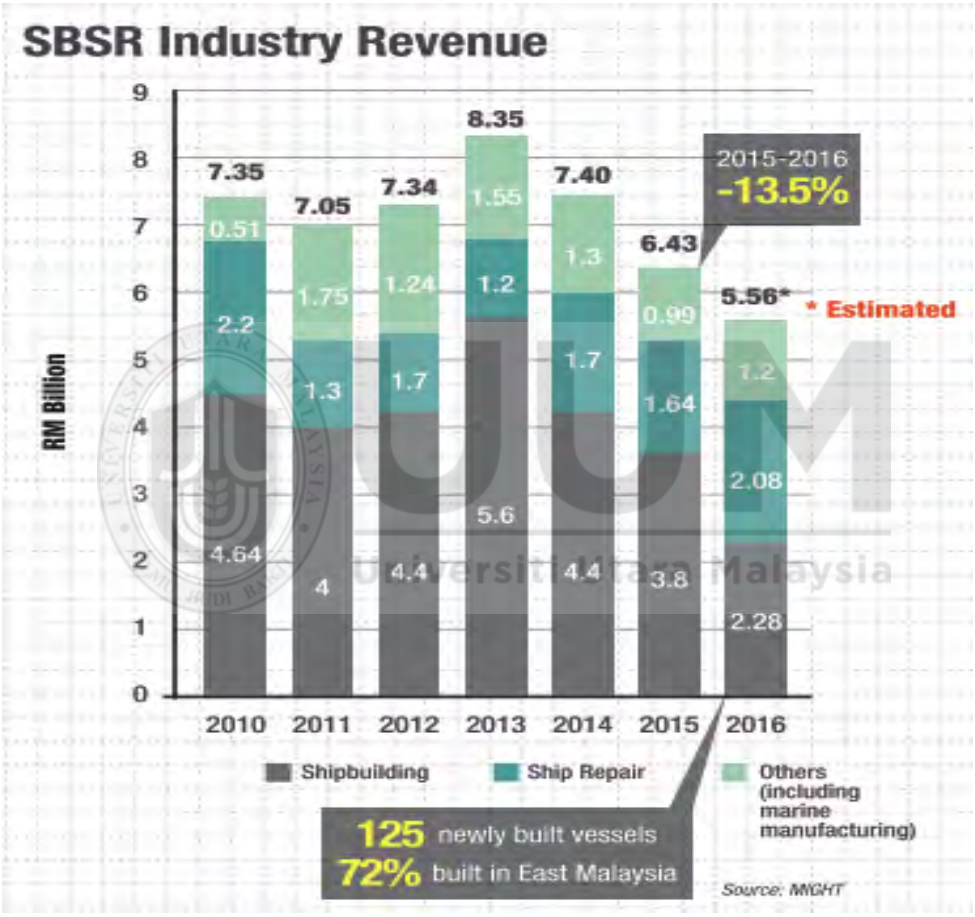

Figure 1.3
Malaysian SBSR Revenue
Source: Malaysian Shipbuilding/Ship Repair Industry Report 2017/2018

From Figure 1.3 also, even though ship repair contributes revenue between 15 – 23% as compared to shipbuilding, which is 57 – 67% per year, it is still a significant activity for shipyards. Ship repair works are awarded to the shipyards as a continuous activity throughout the year, unlike shipbuilding, which is occasionally awarded to the shipyards (Sulaiman et al., 2017).

The shipyard is awarded the RMN ships for ship repair project from time to time according to RMN ship repair schedule. In doing ship repair works, there are a few issues which lead to the problem. Matters that contributed to the problems among others are poor communication, traditional practices in doing ship repair works and lack in the utilization of production drawing. Shipyard regards these issues as significant, as it leads to the low performance of the company in terms of low-quality products, which effect reworks, increase cost and delayed delivery (Solutions, 2013).

Observation on the utilization of production drawing during ship repair works by the Production was carried out to verify that they are working based on the design provided by the Engineering Department. At the same time, design issues in Engineering Department were also observed.

1.1 Company Background

The shipyard is formerly known as Royal Malaysian Navy (RMN) Dockyard was thought of in the mid-'70s, commenced construction in 1980 and began actively operational in 1984. It was formerly a government ship repair facility corporatized in 1991 and privatized in 1995 as Penang Shipbuilding & Construction – Naval Dockyard (PSC-ND) Sdn Bhd. Boustead Holding Berhad, an investment arm of the Arm Forces Provident Fund (LTAT), initially bought a 31 percent stake in PSC-ND, hence a new management team was put in place at the end of 2005. With the management take over, PSC-ND was officially changed to the shipyard effective from 4th August 2006.

Today, the shipyard takes excellent honor as a premier yard in the country, catering for the RMN defense needs and, in the country's, commercial requirements. The core activities of the shipyard are shipbuilding and ship repair. The shipyard competency in the naval shipbuilding segment has allowed it to cater to the defense and maritime requirements of the country via the RMN (Boustead Holding, 2014). The Shipyard is prepared to become a significant player in naval construction and heavy engineering not only in Malaysia but also catering for regional and international requirements. With the support from the Government of Malaysia, foreign contractors, and local vendors, this Shipyard is entering a new era in ship

repair and shipbuilding activities (Boustead Guidelines for Vendor and Vendor Development Program).

Activities range from simple hull repair to complete overhaul of the combat system, platform system, radar and radios including retrofitting of guns, missiles, and weapon systems. The services of standard maintenance have also been extended to foreign naval vessels of the United States, New Zealand, United Kingdom, Australia, and French navies. The shipyard has also developed the capacity to design and build new patrol vessels (Boustead Guidelines for Vendor and Vendor Development Program). These activities are believed to be in accordance with the government's effort in encouraging the private sectors to take a leading role as the engine of growth in the economic development of the nation.

The shipyard has more than six hundred professionals and skilled personnel, which include professional managers, engineers, skilled and non-skilled workers and technicians. These are strengthened by more than a thousand subcontract workers and suppliers. The shipyard premises are competent to fulfill every level of RMN maintenance need, where it was equipped with a comprehensive range of modern facilities. (Boustead Guidelines for Vendor and Vendor Development Program).

1.2 Background of the Research

As mentioned previously, the Shipyard is involved in both ship repair and shipbuilding projects. This research focused on the ship repair project, where it is one of the main activities that actively contribute to the shipyard's revenue and cash flow. It recorded about RM100 million in revenue per year, caters the requirements for RMN as well as commercial customers. Participation of subcontractors in implementing the success of ship repair project was very significant, and they contribute more than 70% of the overall cost of the project (extracted from previous profit & loss for Shipyard, ship repair project). Involvement of subcontractors is managed and monitored by the Production Department.

Past research revealed that subcontracting forms a huge portion of manpower in the building industry of all construction projects. According to Mbachu (2008), Hinze and Tracy observed that a considerable percentage of about 80-90% of building projects in Australia are subcontracted out. Lehtinen (1999) stressed the significance of subcontracting in the present business, which has rapidly developed and a lot of companies encountering new demands and challenges.

Currently, there is an instruction from the shipyard management with advice from Korean consultant for Engineering Department to lead on the design and engineering aspect for the ship repair project. Hence, the Engineering Department responsible for producing drawings, material definition, and production engineering for the ship

repair project. Previously, the Engineering Department is only responsible for the design and engineering aspect for new ship design (Engineering Department, 2010).

Lehtinen (1999) mentioned that the capability of the main contractor to complete and deliver the project as per quality, time and cost targets very much depends on the subcontractors' performance. With 70% of the overall cost participation of subcontractors in the shipyard, their performance is very crucial to be maintained and improved.

All subcontractors that participated in the ship repair works project are considered as part of the extended shipyard workforce, and their problems become essential matters for the shipyard to share and resolve. These subcontracting works have complemented the successful delivery of Ship repair projects throughout The shipyard in both projects, which involved RMN and commercial vessels. However, issues on the cost overrun, quality and late delivery of ships undergoing repair still exist.

Competent subcontractors play a very significant role in ensuring the project completion is within the time frame; on the other hand, the success of the construction project can be put at risk if the subcontractor is incapable and inexperience (Yong & Mustaffa, 2012).

The shipyard has engaged a consultant to conduct a Business Review Management Development to identify the company's problems and ways ahead of how to solve the problems. One of the problems that were identified by the consultant is the average and poor performance of subcontractors, which is managed by the Production Department (Solutions, 2013).

By reviewing the current construction industry literature, the requirement for a project partnering approach, especially on the elements of communication to eliminate the incidence of adversarial practices between the main contractors and subcontractors, can be identified. This approach should make the highest possible application of partnering literature. Subcontractors' performance plays a significant role in construction projects. Based on the statistical result, the partnership is proven to have an effect on the improvement of the subcontractors' performances (Cheng & Carrillo, 2012).

Delays in the completion of ships undergoing routine maintenance in the shipyard are currently widely discussed among the officers and other ranks in the RMN. Consequently, RMN begins to send ships to another competitor, shipyard all around the country (Discussion in the Operation Management Meeting). This situation is alarming and needs to be addressed seriously by carrying out research to investigate the source of the problem and propose remedial actions.

Raof (1996) discussed the improvement in strategies of ship refit and procedures. The author discussed this topic due to concerns of ships delay while undergoing a refit at the shipyard. In addition, since the early sixties, the RMN has acquired ships from various countries, such as South Korea, Germany, Sweden, Great Britain, and the United States. In most instances, equipment or systems for the ships were purchased from various countries, although the ships are built in one country.

Equipment or systems that are required by the RMN are chosen in keeping with the recent technology and enhanced performance of the ships. Obtaining systems from various countries put a huge burden on the RMN in maintaining the operation of the Malaysian Fleet and sufficient logistic support (Raof, 1996). Besides, there are other parties contributing to the delay, namely the Original Equipment Manufacturer (OEM), RMN, subcontractors and the shipyard itself (Solutions, 2013).

As explained in the background of the research, ship repair project is one of the main activities, which actively contribute to the shipyard's revenue and cash flow. Production department played a significant role in ship repair project as it involved directly on the performance in terms of quality, cost and delivery time of the project. In ensuring the entire scope of works for ship repair is completed, the Production department invited subcontractors to assist them. Currently, subcontractors assist in almost all ship repair projects. In terms of characteristics, ship repair is labor intensive and may require various levels of labor skills. Automation is not an option

in ship repair business due to the unique nature of repairs / reworks required on each and every vessel. Seventy percent (70%) of ship repair works can be done either at berth or afloat. On average, the cost of repairing a ship can be worked out as 65% labor and 35% steelworks and spare parts (MIGHT, 2011). On the issue of quality, it could be seen as presented in Table 1.1 and Figure 1.4.

Table 1.1
Reworks for KD KASTURI 2012 - Quality Issue

Rework Category	Cause of Rework	Cases
Work is done not within specifications	Inadequate Specifications/Production drawings	20
Installation needs to be removed as it is obstructing other work	Poor Planning/Scheduling	9
	Total	29

Source: Source: (Asian Business Solutions, 2013)

The data was observed and recorded by the ABS's report as attached in Appendix A.

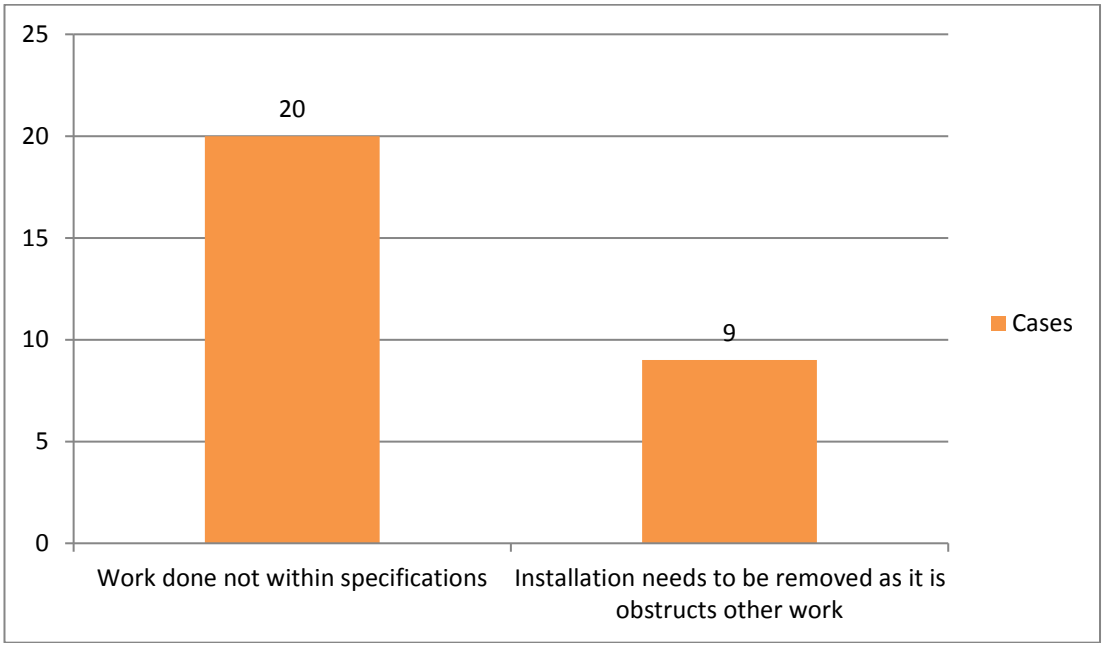

Figure 1.4
Rework for KD KASTURI 2012 - Quality Issue
Source: Source: (Asian Business Solutions, 2013)

On the issue of increasing the cost of the project, the Profit Before Tax (PBT) indicates unhealthy decreased since 2010, as shown in Table 1.2 and Figure 1.5. The percentage of PBT decreased from 7.6 to - 0.4, 3.5 and 4.3.

Table 1.2
Five Years of Profit and Loss

Year	2008	2009	2010	2011	2012	2013
Turnover	879,445,206	764,779,905	706,725,682	499,416,123	914,497,921	467,542,579
Profit Before Tax (PBT)	122,408,898	111,223,140	53,817,433	-2,077,818	32,375,123	20,332,694
PBT ratio %	13.9	14.5	7.6	-0.4	3.5	4.3

Source: Source: (Asian Business Solutions, 2013)

The data was observed and recorded by the ABS's report, as attached in Appendix B and Appendix C.

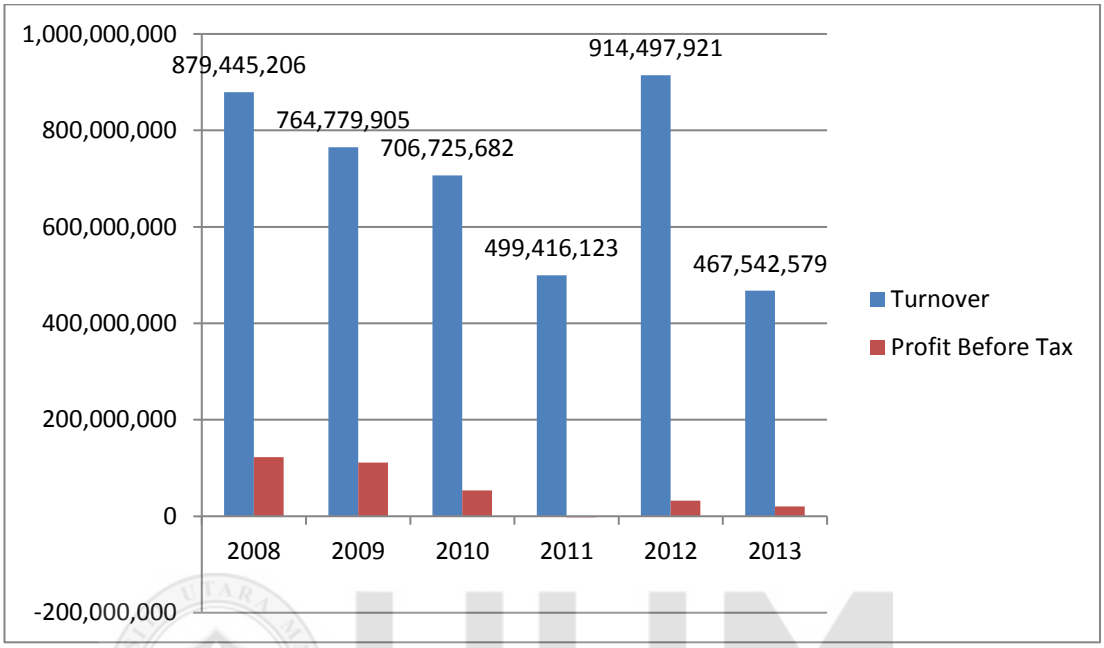

Figure 1.5
Five Years of Profit and Loss
Source: Source: (Asian Business Solutions, 2013)

Late delivery of ships under repair or project schedule delay is the ultimate result of many factors. One of the significant and important factors is the low performance of the Production department due to the non-performing subcontractor. The record shows that not even one project was completed within the scheduled time as shown in Table 1.3 and Figure 1.6. The minimum delay is 8.6 months for KD LAKSAMANA TUN ABDUL JAMIL, and the average delay is 16.87 months for all six ships.

Table 1.3
Completion Date Schedule-Late Delivery

Ships	Start Date	Schedule Completion Date	Actual Completion Date	Days Delayed	Months Delayed	Years Delayed
KD GANYANG	26/12/2008	07/11/2009	27/05/2011	566.00	18.87	1.57
KD LAKSAMANA MUHD AMIN	12/08/2008	28/08/2009	23/12/2011	847.00	28.23	2.35
KD MAHAWANGSA	20/01/2009	21/01/2010	24/03/2011	427.00	14.23	1.19
KD JEBAT	10/03/2009	01/06/2010	29/03/2011	301.00	10.03	0.84
KD HANG TUAH	03/11/2009	01/11/2010	31/07/2012	638.00	21.27	1.77
KD LAKSAMANA TUN ABDUL JAMIL	14/03/2011	13/03/2012	26/11/2012	258.00	8.60	0.72
			Average	506.17	16.87	1.41

Source: Source: (Asian Business Solutions, 2013)

The data was observed and recorded by the ABS's report as attached in Appendix D and Appendix E.

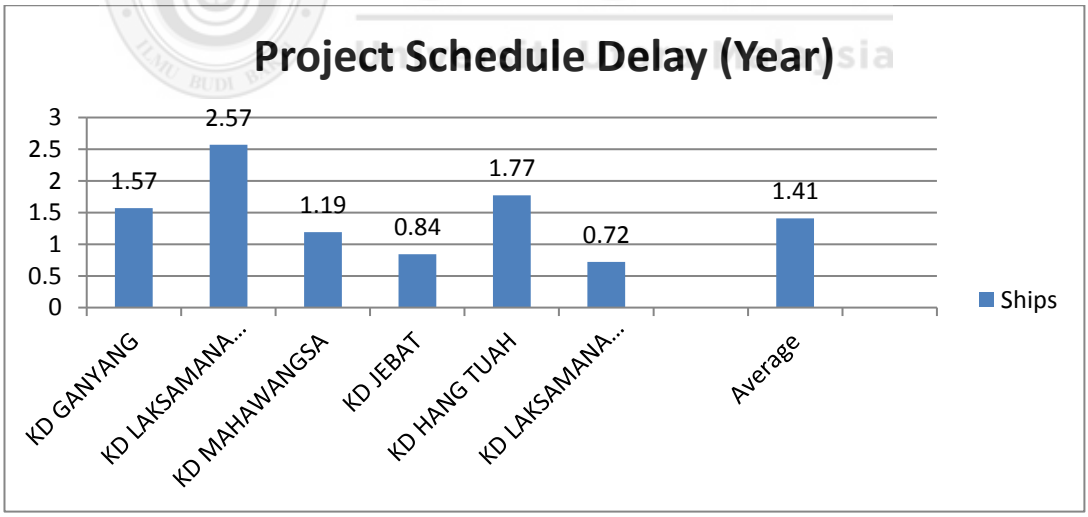

Figure 1.6
Project Schedule Delay
Source: Source: (Asian Business Solutions, 2013)

There are issues on reworks as shown in Table 1.1 and Figure 1.4 for KD LEKIR repair works, 2012. In ships repair, design issues are limited to installation of new equipment and modification of existing systems on board of ships. For ship repair, production engineering was never implemented, and materials are identified as and when the need arises. As for example, when a survey is conducted and requires drawings, the Engineering Department only consulted for assistance if workshops are not capable of developing the drawings themselves. However, since repair work is always on a tight schedule, Engineering is rarely consulted, and Project Management relies mainly on their experience to resolve engineering matters. The information and experience are considered temporary, only for the purpose of resolving the task at hand and not developing into standards that can be passed on.

Due to the non-availability of the design engineering function in Ship repair, the following tasks are not routinely supported by engineering; 1) Drawing, 2) Material definition and 3) Production Engineering (Boustead Naval Shipyard, 2015a).

In November 2014, there was a severe incident involving a survey vessel, KD PERANTAU which belong to the RMN listing in the shipyard jetty. This incident happened when seawater enters through the hull opening on the left side of the vessel and the vessel listing to the left. This incident became the starting point for design engineering to be available in ship repair in which Engineering Department took on

this challenge. This research focused on the requirement of production drawing as one of the design engineering elements. Since the vessel's listing was a real disaster, it needs a very efficient and practical approach to carry out restoration work.

In order to implement the production drawing for the ship, repair works entirely; there are some conflicts between the Engineering and Production Department. With the culture of doing work based on experience and using sketch drawing, Production workers tend to ignore the use of production drawing for the entire scope of ship repair works. On the other hand, with young engineers in the Engineering Department, the production drawings provided are not comprehensive enough due to lack of expertise and experience. For example, there are works where the Production department carried out without production drawing for KD PERANTAU:

a. Piping Arrangement for installation:

The installation was done based on experience by using sketch drawing and pictures that were taken during the removable phase before the ship was listing. In this issue other than working culture, the difference or un-match tagging system between production drawing and the actual parts in Production was also a contributing factor. Another factor identified based on observation and interview is

that the subcontractor workers do not have sufficient education or training to read and understand the drawing.

b. Duct Arrangement in Bridge Deck and Boat Deck:

Engineering Department provides drawing duct arrangement from the Main Deck to the Bridge Deck. However, the Production department has a plan of working from the Bridge Deck to the Main Deck. This creates a sequence of problems. In the end, the Production department started work from the Bridge Deck since the drawing was not ready. The Production department has to produce its own sketch instead of waiting for the drawing from the Engineering department.

This research focused on the conflicts that are currently happening to improve ship repair works. Conflicts appear to be an exceptionally equivalent word with construction ventures and promoting the impression of issues including cost invaded, time overwhelmed and benefits and losses of the projects (Khahro & Ali, 2014).

Previous researchers revealed that communication often became an issue in construction and stressed that communication barriers could be eliminated by implementing partnering approach (Xie, Wu, Luo, & Hu, 2010). Lowe (1994) conducted research for the United States Naval Facilities Engineering Command and

quoted that partnering is designed as a tool of contract administration in order to trigger an open communication between contracting parties and also to prevent the traditional adversarial relationships as it becomes common in the years before.

Based on the literature review, there are gaps in the conflict and communication in the construction industry and also for the maritime defense industry. This research investigated the conflicts on the design and engineering issues which involved the Engineering Department and Production Department towards Production's performance of ship repair works. All of these factors affect the low-quality product of works, increased cost of the project, and the late project of delivery. Lehtinen (1999) stressed that the project must be completed on time, where control on the quality and cost targeted are fundamentally based on the performance of the subcontractors, and it is in the ability of the main contractor. In this case, the main contractor is the shipyard.

This research is to identify how conflicts of ship repair in Production Department is contributing to the delay (Solutions, 2013). In fact, Enterprise Risk Management (ERM) has registered the same factor in the last few years. Qualitative research was selected as a methodology most applicable to address this situation. Dasuki (2015) revealed that a case study research in qualitative method to be the most appropriate in gathering experience and knowledge of the work process in the ship construction

industry. This research contributes to improving the existing problem in an organization or community.

1.2.1 Background of the Production Department

Production Department is led by the Head of Department and consists of five (5) units, as shown in Figure 1.7. Two (2) units' function as administrative and planning units, respectively. Another three (3) units functioned as production engineering and equipped with their respective workshops.

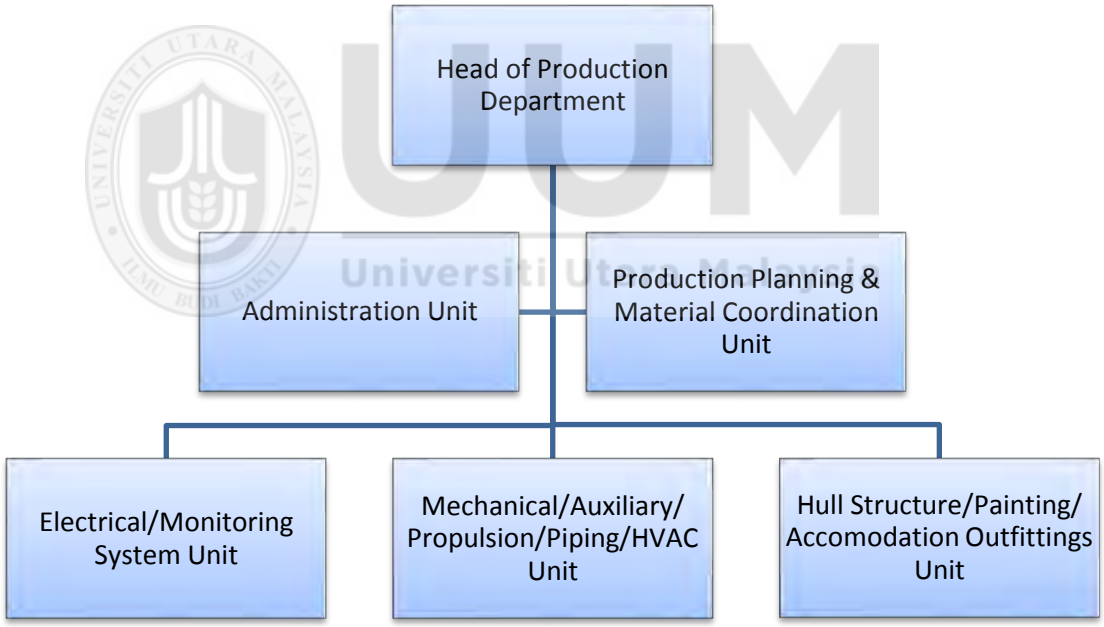

Figure 1.7
Production Department Organization Chart
Source: Data from Production Department

The primary function of the Production Department is to manage ship repair works with the estimated cost, expected quality and delivered the project on time.

1.2.2 Background of the Engineering Department

The Engineering Department is led by the Head of Department and consists of five (5) units where two (2) units functioned as administration and planning. The remaining three (3) units deal with engineering issues and production designs. The organization chart is as shown in Figure 1.8.

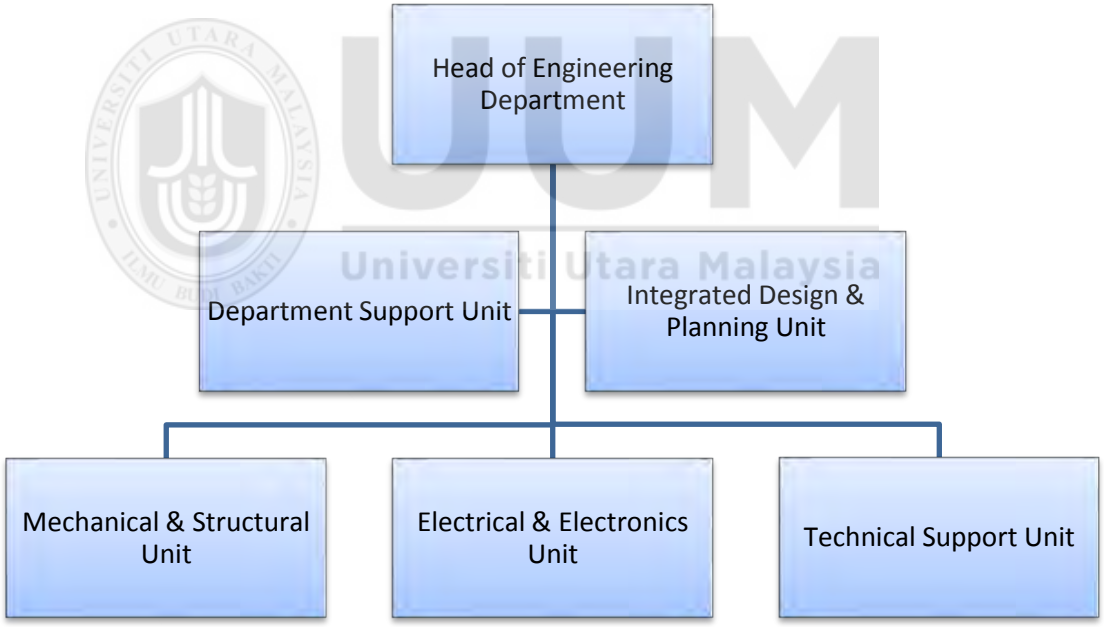

Figure 1.8
Engineering Department Organization Chart
Source: Data from the Engineering Department

The primary functions of the Engineering Department are managing engineering and design issues.

1.3 Problem Statement

It is stated in vision 2020 that the Malaysian shipbuilding/ship repair (SBSR) industry will be a major player in the small to medium - sized shipbuilding market renowned for its quality and value of its high technology products and services, substantially contributing to the national economy (MIGHT, 2011). There are seven objectives laid down, and two of them are related to shipping repairs which are ; (1) to capture 80% of the South China Sea offshore repair market and (2) to capture 3% of the Strait of Malacca repair market (MIGHT, 2011). This vision 2020 SBSR as national agenda was highlighted and reminded again by the President and CEO of MIGHT in the industry report 2015/2016 (Zainal et al., 2015).

Malaysia's shipbuilding and ship repair industry represent some fraction of the world market. According to Clarkson, Malaysia's order book in 2009 represented about 0.8% of the world order book. In 2010, the industry generated a revenue of approximately RM7.36 billion (USD 2.33 billion) and provided 31,000 employment. Out of the 252 newly built vessels by local yards, 72 ships or 28% were exported (Koto & Baihaque, 2018).

In the latest SBSR 2017/2018 report stated that the Shipyard had engaged with the South Korean expert through MIGHT – Meteor in improving the yard's delivery performance. The Shipyard has engaged two subject matter expert (SME) from Daewoo Shipbuilding and Marine Engineering (DSME) South Korea. They are the Executive Managing Director, Mr Suh Wan Chul, and the experience Engineer Mr. Bae Jae Ug. Both of them managed to help in mitigating the delay and deliver the first ship they were involved, KD LEKIR before the completion date, 30 October 2014. Based on the success of this initiative, BNS has continued the collaboration for other projects. The engagement of South Korean expert initiative was to support the 7th strategy of SBSR vision 2020 that was competency industry (Sulaiman et al., 2017). South Korea, is one of the newly industrialized countries, which have shown rapid growth in productivity and per capita income since the 1950s and their business cultures, organization, working practices as well as management styles are to some extent like the Japanese (Yushak, 2017). Starting from the year 2000, South Korea caught up with Japan and rose as the leader, boasting cutting-edge technology in the manufacturing of specialized vessels and offshore structure (Sohn, Chang, & Song, 2009). The country leading the world shipbuilding market share in terms of construction volume as shown in Table 1.4.

Table 1.4
World Shipbuilding Market Share - Construction Volume (unit: %)*

Ranking	1955	1965	1975	1985	1998	2000	2005	2011	2014
1	Britain	Japan	Japan	Japan	Japan	**Korea**	**Korea**	China	China
	(18.3)	(43.9)	(50.1)	(52.3)	(42.0)	**(40.7)**	**(35.2)**	(43.8)	(38.8)
2	Norway	Sweden	Germany	**Korea**	**Korea**	Japan	Japan	**Korea**	**Korea**
	(14.5)	(9.6)	(7.1)	**(14.4)**	**(28.9)**	(39.0)	(28.6)	**(33.9)**	**(29.8)**
3	Germany	Britain	Sweden	Germany	China	Germany	China	Japan	Japan
	(9.9)	(8.8)	(6.9)	(3.1)	(4.8)	(3.3)	(14.5)	(13.5)	(23.4)
4	France	Germany	Spain	Spain	Germany	China	Germany	Philippines	Philippines
	(4.7)	(8.4)	(4.6)	(3.0)	(4.2)	(3.2)	(3.6)	(2.7)	(2.3)
5	Japan	France	Britain	France	Italy	Taiwan	Poland	Italy	Italy
	(4.6)	(3.9)	(3.6)	(1.1)	(3.2)	(2.1)	(2.3)	(0.7)	(0.8)
6			**Korea**	China				Germany	Germany
			(1.2)	(0.9)				(0.7)	(0.7)

Source: Source: (Sohn et al., 2009)

As one of the major player of SBSR, the shipyard has to support the government vision and prepare for it. To date, the shipyard was facing a great challenge in completing the ship under repair and deliver to the customer timely. The Royal Malaysian Navy was the main shipyard's customer since long time ago. Among the Royal Malaysian Navy people, it was rampant to hear from them that once the ship awarded to the shipyard, the delay of completion date is very high. This trademarked was heard since those days, and there were no serious and effective actions taken to change the trademarked. At this stage, the traditional engineering practice was in place where most people work in a silo or in compartmentalized and this environment called "over the wall" (Karlberg, Löfstrand, Sandberg, & Lundin, 2013;

Menon & Graham, 1996; Nawi, Syed Jalaluddin, Zulhumadi, Ibrahim, & Baharum, 2014). This environment created a lot of conflicts and made the working place became not healthy. The conflicts that created resulting in poor communication and cooperation among people in the Shipyard.

The conflict that exists in the organization could be good or bad, as mentioned by Hocker and Wilmot (Henry, 2009). It depends on the nature of conflict and how people manage the conflict. There are types of conflict such as intrapersonal conflict, interpersonal conflict, interorganisational conflict and intergroup conflict (M. A. Rahim, 2001). In this study, the type of conflict is intergroup conflict or departmental conflict since the conflict is focusing between two departments which are the Production department and Engineering department (M. A. Rahim, 2001).

Started in the year 2011 the Shipyard launched a transformation program and engaged Korean consultant as an advisor. In 2013, when the RMN changed the approach of ship repair from the old method to Total Maintenance Package (TMP) as a new method, Production was not fully prepared. Due to this situation, the Production insisted the Engineering to involve in ship repair to assist them. Engineering reluctant to accept this idea since its main functions were in shipbuilding. After a long argument, discussion and meeting, with the advice from the Korean consultant finally, the management issued an instruction for Engineering to involved and assist Production in ship repair. The involvement of Engineering

eventually, not only assisting Production but to lead the process. This obvious change of function and activity create high conflict in the current state. According to Rahim (2002), conflict may happen when a party is required to engage in an activity that is incongruent with his or her needs or interests.

Engineering functions increased from design engineering to another function of production engineering. Previously, the production engineering function in Production has never been implemented in a proper manner. At the beginning of the Engineering involvement in the ship repair process, few production drawings issued to Production for implementation. However, the response from the Production was not encouraging. In many instances, the Production Department did not use the production drawing that was prepared by the Engineering Department. In fact, there is always a conflict between these two departments when the Production staff always asked Engineering staff to amend the production drawing according to the work that has been done instead of they do work in accordance with the drawing provided (Yasin & Osman, 2018). This conflict has to be investigated and studied in order to improve ship repair works. This kind of conflict could cause reworks due to performing ship repair works without guidance from the production drawing, which leads to waste. Waste can be defined as any activity which does not have added value (Jakubiec & Brodnicka, 2016).

In conclusion, possible causes of conflict between the Production Department and Engineering Department have to be explored. The causes of conflict between them are crucial to identify an appropriate way of improving the relationship has to identify. The enhance contribution to both theory and practice where the latter should be given more emphasis than the former.

1.4 Research Questions

Research questions refer to the conflicts that are encountered in the shipyard, which are involved in the Engineering Department and Production Department work process. By identifying and understanding the issues in the research questions, it helped the researchers to study and describe in more detail on the structure of the research. The aim of this study is to introduce an intervention to resolve the conflict between these two departments. Hence, the questions of this research are as follows:

1. What are the possible causes that contributed to the conflict between the Production department and Engineering department?

2. In what way can the relationship between the Production department and Engineering department be enhanced or improved to address the conflict?

After knowing the extent of the conflict and the causes of the conflict, a practical solution is recommended to manage the conflict. Managing conflict is very important because the effect of conflicts whether positive or negative depends on how conflicts are managed.

1.5 The Significance of the Research

This research is very significant in a practical aspect to improve the ship repair works as well as contributing to the Body of Knowledge. Efficient and effective management of ship repair project is very important to achieve high quality works as expected by the customer and within the cost and time agreed in the contract. In order to achieve these, unhealthy conflict has to be managed accordingly.

There is no general consensus on a specific model that describes how groups should manage conflict. There are different factors that influence group conflict administration process (Olaniran, 2010). The conflict has a positive and negative impact on the organization-working environment. While the positive impact is most welcomed, the negative impact has to be addressed. Ignorance of the negative aspect of conflict can create an unhealthy environment in the workplace which could lead to low performance. In this case, managing conflict has become very significant. With this research, there is a great chance to identify and suggest ways to improve and overcome the problem.

Recently, RMN is reorganizing its fleet from fifteen (15) squadrons to become five (5) squadrons, as illustrated in Figure 1.9 (Abas, 2018). With the new concept and development, as a major player in the maritime industry, the chances of the Shipyard to play a bigger role is expected to materialize the concept.

Figure 1.9
RMN's 15 to 5 Transformation Plan
Source: Adapt from Malaysian Defence Magazine

The RMN's 15 to 5 Transformation Plan, aimed at increasing the number of ships in service while consolidating its current fleet of 15 asset classes to 5, offers the shipyard bright prospects for the years ahead, particularly in terms of maintenance,

repair, and overhaul (MRO) work. In addition, the shipyard will continue to undertake MRO works for RMN's four Laksamana-class corvettes up until the gradual decommissioning of this asset class in line with RMN's 15 to 5 Transformation Plan (BHIC, 2018).

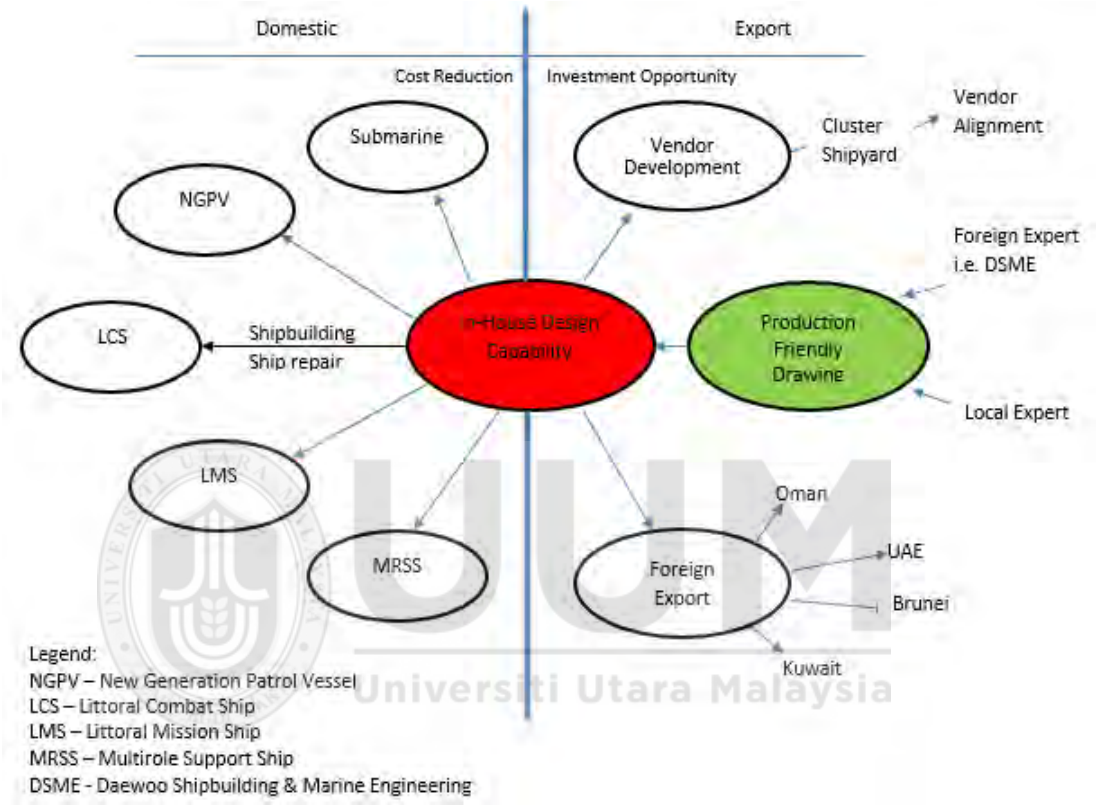

Figure 1.10
The Significance of In-house Design Capability
Source: Discussion with shipyard Transformation & Continous Improvement Department

As the shipyard journey forward, the shipyard is focused on capitalizing on the prospects provided by the RMN's 15 to 5 program and explore new opportunities in non-defense-related shipbuilding and ship repair projects. With the commitment and capability of each and every member of the shipyard, is believed to have the ability

to grow as a robust, technology-oriented, heavy industries player with a focus on sustainable growth (BHIC, 2018). The sustainable of the shipyard will be efficient and effective with the assistance of versatile in-house design capability, as shown in Figure 1.10. If in-house design capability is materialized, the shipyard could enhance its role not only as national maritime industry player but international as well.

1.6 Scopes of the Research

The research covers the conflicts that exist in both departments which are Production Department and Engineering Department in the Shipyard. The possible causes that contributed to the conflict have to be identified. The detail functions of both departments are also necessary to be studied to know exactly their roles. The study started from June 2013 until September 2018.

1.7 Limitations of the Research

The limitations that restrict this research in its search for information are such as duration of fieldwork are limited. This research is also among the first that specifically focus on the naval ship construction in Malaysia. The research is conducted using available resources within the company and is limited by cost.

1.8 Operational Definitions

Operational definitions concretize the intended meaning of a concept in relation to a particular study and provide some criteria for measuring the empirical existence of that concept.

Intergroup Conflict (IGC) – IGC is the collective incompatibility or difference between two or more divisions, departments, or subsystems in connection with tasks, resources, information, etc (Rahim, 2001).

Design approach – Design approach is a broad area that concentrates on discovering potentials and constraints by focusing on critical thinking skills to research and define problem spaces for the present products or services.

Production engineering – Production engineering is a mixture of manufacturing technology with management sciences, where Production engineers deal with engineering practices and administration challenges which are related to production.

Production drawing – Production drawing is a specialized engineering drawing that provides the information required to make the part or assembly of the final design. Production drawing relies on orthographic projection and many other graphical techniques to communicate design information for production.

Production Friendly Drawing (PFD) – Introduced by the South Korean Consultant attached in local at the Shipyard. It is a production drawing with comprehensive information of dimension, material specification, fabrication, and detailed installation.

Ship Repair Work – Term used for works onboard ship that has been sent to Shipyard for undergoing routine maintenance or emergency repair.

1.9 Organization of the Thesis

The shipyard is facing problems in handling delay in completing ship repair works. The Production Department is still using the old approach to perform its work based on experience and using sketch drawing. This research aims to investigate the best way of fixing the problem of delaying completion of the ship repair work.

In this study, the organization of the thesis is divided into five (5) chapters. The following are the chapter's description and contents of this study. Chapter one presents the introduction of the research which consists of an overview, company introduction, background of the research, problem statement, research questions, the significance of the research, scopes of the research, limitation of the research, operational definition, and organization of the thesis.

Chapter two discusses the literature review which consist of introduction, organizational conflict, development of the organizational conflict theories, phases of organizational conflict, outcome of organizational conflict, type of organizational conflict, nature of intergroup conflict, the causal factors of intergroup conflict, managing intergroup conflict, factors that assist in managing intergroup conflict, stages of managing intergroup conflict, Kurt Lewin 3-steps model of change as underlying theory, over the wall approach, production-friendly drawing in ship repair works, solution of conflicts and effect in ship delivery time and summary.

Chapter three discussed research methodology and started with the introduction. In this chapter, the researcher also discussed on research design, case research methodology, the population of the research, selection of respondents, data collection strategies, data analysis procedure and closed with a summary.

Chapter four explains the results of the research through interviews; observations and document review that generate in themes or categories or identify patterns.

Chapter five describes the findings, draws conclusions based on the examination of study results and review of the literature in the field, discusses the implications of the study for practice, and makes recommendations for future research.

CHAPTER TWO
LITERATURE REVIEW

2.0 Overview

The chapter begins with section 2.1 which explaining about the study of literature review on the relevant theories. Section 2.2 is about over the wall phenomenon, section 2.3 is about organizational conflict, section 2.4 is about managing intergroup conflict, section 2.5 is about conflict and Kurt Lewin 3-Steps Model of change as underlying theory, section 2.6 on the possible solution of IGC and implementation of PFD and finally a summary of the chapter.

2.1 Introduction

The chapter presents a review of the literature on the relevant theories and studies related to the research. The objectives are to provide a background and present the arrangement of the research. The review begins with an overview of the history of over the wall phenomenon, organizational conflict, managing intergroup conflict, conflict and Kurt Lewin 3-Steps model of change and implementation of PFD. The summary of this chapter serves as a synopsis and an outline of the literature that provides context for this research.

Over the wall engineering approach which is also known as Traditional Engineering or Sequential Engineering (SE) is crucial to change in order to improve the

organization performance (Prasad, 1995). Improvement is very significant in any organizations to ensure that they are relevant and competitive. According to Sands (1998), one program is an improvement of another if its execution is more proficient in any program setting. In order to ensure the improvement is occurring continuously, there is a term known as continuous improvement. One of the popular continuous improvement approaches is Kaizen (Hyun Woong Jin & Doolen, 2014). According to Algelin (2010), Kaizen is an idea that, when executed effectively, through the end of unnecessary work stack makes the work environment more altruistic, and it teaches individuals how to enhance their function circumstance through scientific experiments.

Perception of conflict could lead to an element of waste. According to Slack, Chambers & Johnston, elimination of waste and continuous improvement are factors contributing to a lean concept besides the involvement of staff in operation (Jakubiec & Brodnicka, 2016). In order to eliminate waste due to the perception of conflict, it must be properly managed. Conflict management is the way toward constraining the negative parts of conflict while expanding the positive parts of the conflict. The purpose of conflict management is to improve learning and gathering results, incorporating adequacy or execution in an administrative setting (M. A. Rahim, 2002).

Figure 2.1 provides a simple visualization of the abstract process that the researcher went through to amplify. These create a mental domain to be explored, giving rise to different sub-topics resulting in classification or subsection of the related work.

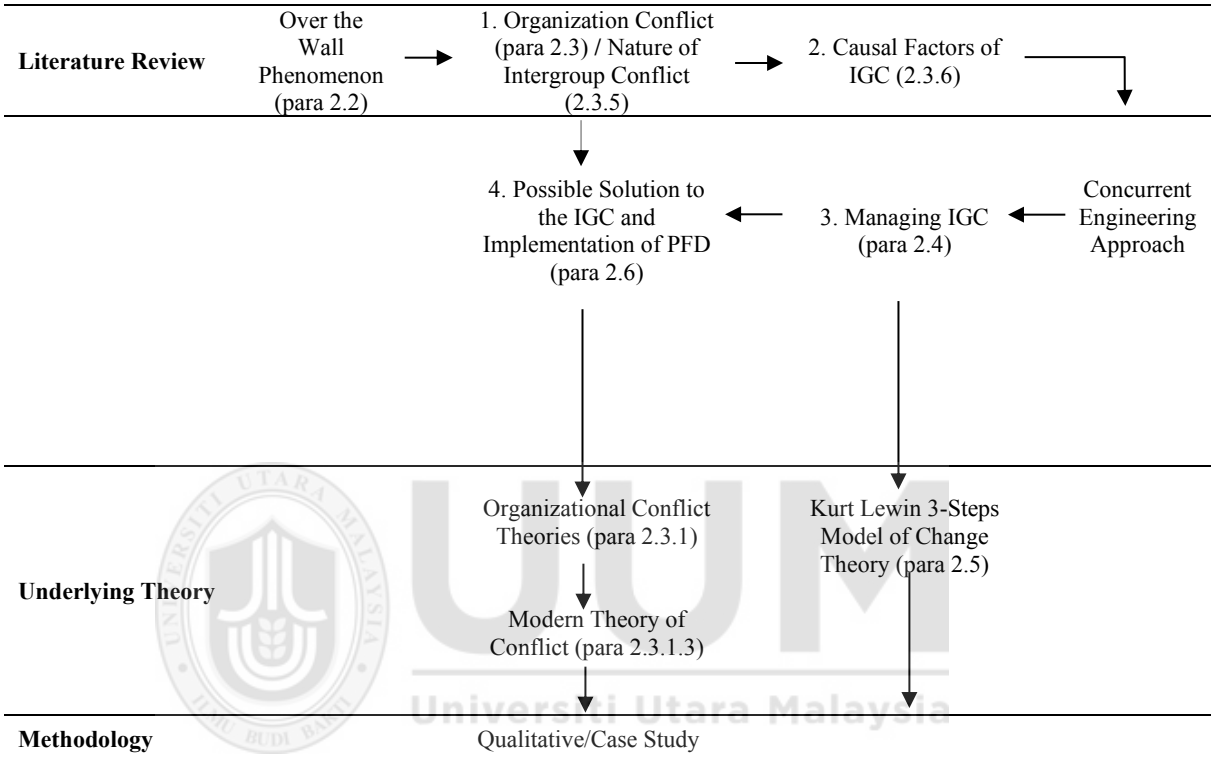

Figure 2.1
Literature Review Process

1. Over the wall phenomenon that exists in the organization became the main source of conflict. Organization conflict can be divided into three levels, which are individual level, group level, and organizational level. Management writers used many terms to indicate conflict such as a dispute, disagreement, clash, contradiction, and so on. In fact, many people, when they hear the word conflict, usually think of

the conditions of war and fighting. However, it can be argued that these situations are very advanced cases which have been neglected and not addressed correctly (Elmaghri, 2013). In this section, the IGC was explored as it is part of the OC. IGC is also known as inter-department conflict (M. A. Rahim, 2001).

2. Causal factors of IGC that happened between departments is important to be identified for the next actions taken.

3. The management of IGC involves channeling the energies, expertise, and resources of the members of conflicting groups for synergistic solutions to their common problems or attainment of overall organizational goals (M. A. Rahim, 2001). Whether the conflict is function or dysfunction is dependent on how people manage it.

4. Possible solutions were explored to resolve the IGC. A common medium has to be identified so that the conflict between the department could be managed. As explained in the literature, for the organization to maintain competitively, there must be a conflict with wisdom in management.

2.2 Over the Wall Phenomenon

Over the wall is the term used to describe the method of production in a linear format. The different steps are taken one after another, with all attention and

resources focused on that one task. After it is completed, it is left alone, and everything is concentrated on the next task (Prasad, 1995).

Prior to the industrial revolution where technology is still not complex, the design, manufacture and sales process are done by a single person. This era is known as the era of craftsmen. A craftsman is a designer, manufacturer, and salesman all in one. However, when technology became more complex people began to specialize in different areas of the product design cycle. This gave rise to salespeople, manufacturing experts, design experts and a design process known as over the wall design or traditional engineering.

The traditional engineering, also known as sequential engineering (SE), is the process of requirements definitions, product definition, process definition and delivery and support where each stage of the development process is carried out separately, and the next stage cannot start until the previous stage is finished. (Aapaoja, Haapasalo, & Söderström, 2013; Andersson, Hagqvist, Sundin, & Björkman, 2014; Heinzemann, Sudmann, Schäfer, & Tichy, 2013; Kalay, 2006; Karlberg et al., 2013; Kerga, Akaberi, Taisch, Rossi, & Terzi, 2013; Lee, Jeong, Oh, & Hong, 2014; Nawi, 2011; Nawi, Lee, Azman, & Kamar, 2014; Sofuoğlu, 2013; Turkulainen, Kujala, Artto, & Levitt, 2013).

Traditional engineering is also known as over the wall engineering as each stage blindly throws the development to the next stage over the wall, as illustrated in Figure 2.2.

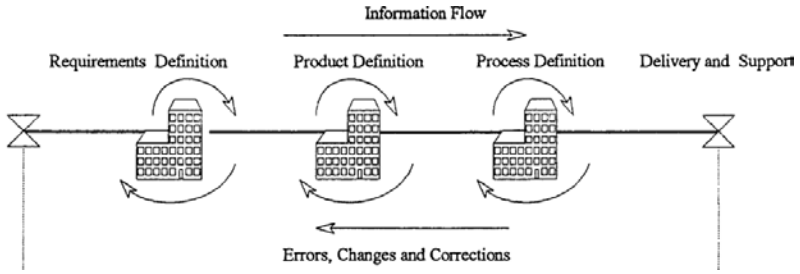

Figure 2.2
Over the Wall Engineering
Source: Adapted from (Prasad, 1995)

This can cause many problems; such as time consumption due to many modifications being made at each stage that does not consider the next. This method is hardly used today, as the concept of concurrent engineering (CE) is more efficient than the SE (Sofuoğlu, 2013).

Concurrent Engineering is a systematic approach to the integrated, concurrent design of products and their related processes, including manufacture and support. Its main aim is to reduce time-to-market, improve quality and reduce costs by taking into account downstream requirements and constraints already in the design phase. While starting with a design-manufacturing alignment, gradually the CE way of thinking has been extended to incorporate more lifecycle functions together with a stronger focus on and involvement of both customers and suppliers. Application of CE in

practice has led to remarkable cost savings, time reduction and quality improvement (Wognum & Trienekens, 2015).

Over the wall engineering approach create an environment of working in a silo (Prasad, 1995) or work in isolation (Nawi, Syed Jalaluddin, et al., 2014). The environment in a shipyard before the embarkation of the transformation program was no exception. In short, the over-the-wall design process consisted of different departments in a company working on designs in isolation and then throwing the project over the wall to the next department. The grievances about the over-the-wall design systems were taken too long to complete, cost too much and did not satisfy the requirement of the customer.

2.2.1 Take Too Long to Complete

It will create problems such as prevalence of costly engineering changes, design iterations, rework and unnecessary liability claims, the lack of communication between each of the disciplines involved in the development process, lack of true life-cycle analysis of the project and also constructability, supportability and maintainability issue are considered late in the process (Nawi, Syed Jalaluddin, et al., 2014) or loss of time (Heinzemann et al., 2013) . Due to all these problems, many items have to be sent back to previous department, unit or section for rework, the length of time for an item to get through the system lead to late delivery.

2.2.2 Cost Too Much

This over-the-wall scenario often results in inefficiencies during the construction phase, such as increased project complexity, rework, longer construction duration and increasing costs (Nawi, Lee, et al., 2014). The root cause of this problem could be traced back to the fact that construction engineers were not consulted about the design until the design engineers had finished the design. The traditional construction process tends to incur additional costs from rework stemming from errors, quality issues and inefficiency of project delivery times (Nawi, Lee, et al., 2014).

2.2.3 Not Satisfy the Requirement of the Customer

Latham highlighted that the traditional construction process involves players that are disconnected from each other and work in isolation resulting in inefficiencies. Non-collaboration and coordination between the parties involved in construction also can lead to conflict and has a negative impact on the quality of the design process and design outcome (Nawi, Lee, et al., 2014). Therefore, the final product did not meet the needs of the customer.

2.3 Organizational Conflict (OC)

Conflict can be divided into three levels, which are individual level, group level, and organizational level conflict, as shown in Figure 2.3. Conflict affecting

organizations can occur in individuals, between individuals, and between groups (Sarangi, 2011). The valuable determination of such clashes or conflict can regularly be accomplished through a judicious procedure of critical thinking, combined with an ability to investigate issues and choices and to hear each out other.

Figure 2.3
Levels of Conflict
Source: Dreamtech Press, 2011

The conflict might be lessened by making a group more durable and homogeneous. In the event that the administrator of a group finds that there is not as much as sufficient measure of substantive conflict inside his or her group, he or she embraces the troublesome task of expanding conflict through structural changes (M. A. Rahim, 2001).

OC is a condition of disagreement caused by the genuine or perceived resistance of necessities, qualities, and interests between individuals cooperating (Sarangi, 2011). There are arguments about how incomes ought to be separated and to what extent and hard individuals should work. There are disagreements regarding how incomes ought to be isolated and to what extent and hard individuals should work. There are jurisdictional contradictions among individual departments and among unions and administration. There are sensitive types of contention including competitions, jealousies, identity conflicts, part definitions and battles for power and support. There is likewise conflict inside people, between contending needs and requests to which people react in various ways (Omisore & Abiodun, 2014).

2.3.1 Development of the Organizational Conflict Theories

Based on the theory, studies have contrasted on the phases of improvement experienced by the theories of conflict in the administrative idea. It was distinguished in three phases (Elmaghri, 2013): the traditional theory of conflict; the theory of human relations of the conflict; and the modern theory of conflict. Table 2.1 summarizes the stages of development of OC theory in managerial thought.

Table 2.1
The Theory of Conflict in Managerial Thought

Statement	Traditional Theory of Conflict	Theory of Human Relations of the Conflict	Modern Theory of Conflict

Nature of conflict	Undesirable	Inevitable and unavoidable	Natural and necessary for the purpose of development and innovation
Feature of conflict	Destruction	Competition	Development
Parties involved in the conflict	Trouble-makers	Everyone	Everyone
Consequences of conflict	Harmful: its consequences are always harmful	Harmful/beneficial: often harmful consequences, and thus a positive outcome relies on the concept of conflict resolution	Beneficial/harmful: often beneficial consequences if managed correctly
Reaction of administration	Rejection	Acceptance	Encouragement sometimes
How administrations confront conflict	Suppression of conflict	Conflict resolution	Managing conflict

Source: (Elmaghri, 2013)

Elmaghri (2013) however reported, Rollinson and Swailem stated that some have considered that the theory of human relations of the conflict is an augmentation of the modern theory of conflict and is a piece of it. Therefore, they believe that the traditional theory and the modern theory of conflict are only two stages which contribute to OC development.

2.3.1.1 Traditional Theory of Conflict

This period of theory continued until the nineteen-forties of the twentieth century (Violetta, 2012 & Leung, 2010). Gadalrab stated that the adopters of this school of thought accepted that an unwelcome behavior triggered conflict in the organization must be wiped out even if by force as soon as it appears (Elmaghri, 2013).

According to Luz-hawkins (2015), in the field of Conflict Management academics perceive that the conventional way to deal with conflict is when two groups dissent, there is a contention in which each tries to demonstrate the other party off-base. A contention can fluctuate fiercely in practice and includes everything from a mellow verbal difference between people to military animosity between countries.

Robbins stated one school of thought says that conflict must be maintained a strategic distance from and that it reflects wrongdoing inside the group. Conflict is seen as contrarily and is related to violence and destruction. Conflict is an after effect of poor correspondence and, an absence of trust between individuals. Conflict can be dispensed with or settled just at high levels of administration. As indicated by this view on conflict, all conflicts ought to stay away from; along these lines there is a need to focus on the reasons for conflict and to rectify them keeping in mind the end goal to enhance group and organizational performance (Violetta, 2012).

This traditional theory of conflict believed an opposite relationship between the level of OC and organizational performance. Based on Figure 2.4, the traditional school of thought believes that organizational performance decreases in the case of high-level conflict while it increases in the case of a low level of conflict.

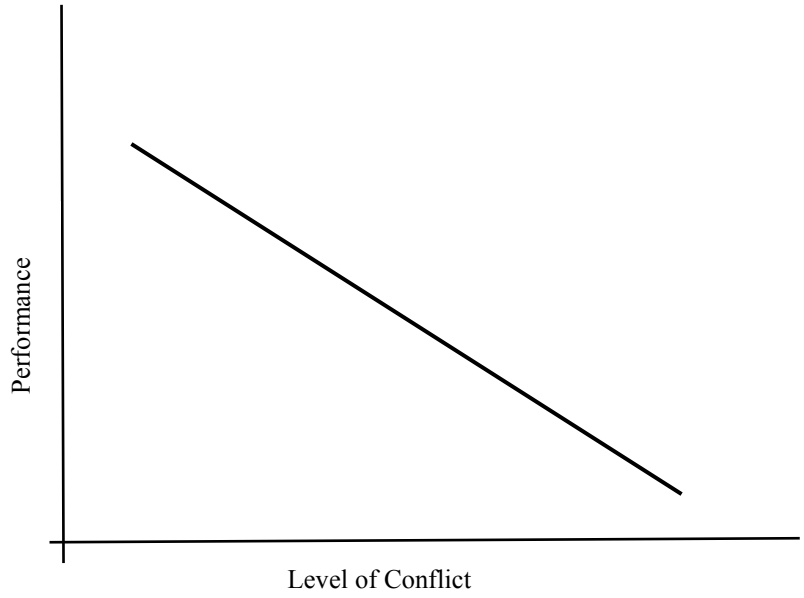

Figure 2.4
Levels of OC vs. Organizational Performance in the Traditional Theory of Conflict
Source: Adapt from Elmaghri, 2013

There are some conventions in this theory which can be encapsulated in the following points: 1) Organizations will be affected by conflict but it can be avoided (Omisore & Abiodun, 2014); 2) There are many ways management can implement to eliminates conflict and by force of official authority is the most crucial way (Ibid); 3) trouble-making members of organization trigger conflict (Violetta, 2012); 4) Negative reactions are caused by OC.

According to Rahim (1986), the traditional school of thought says that conflict must be avoided as it reflects breach within the group. Conflict is seen as contrarily and is related to savagery and demolition. It is an aftereffect of poor correspondence and an absence of trust between individuals and can be wiped out or settled at the high state of administration. According to this view, all conflicts should be avoided. Therefore,

they have to focus on reasons for strife and right that were keeping in mind the end goal to enhance gathering and association execution (Omisore & Abiodun, 2014).

2.3.1.2 Theory of Human Relations of the Conflict

According to Robins, this theory is the development of the traditional theory of conflict and popular in 1940-1970. Conflict is a natural occurrence in all groups. The human relations school of thought accepts conflict. It believes that conflict may benefit a group's performance (Omisore & Abiodun, 2014).

As indicated by this view, Robbins said that conflict is view as a characteristic and unavoidable result of individuals cooperating in gatherings and groups. Therefore it needs not really be seen adversely, but instead decidedly as a potential drive in adding to the execution of people (Omisore & Abiodun, 2014).

2.3.1.3 Modern Theory of Conflict

The view of this theory could be illustrated in Figure 2.5. According to Omisore & Abiodun (2014), Robbins mentioned, according to this view; conflict is a positive constraint, as well as vital for a person to perform successfully. Settling conflicts implies testing typical procedures and methods with an end goal to enhance singular efficiency or present inventive frameworks.

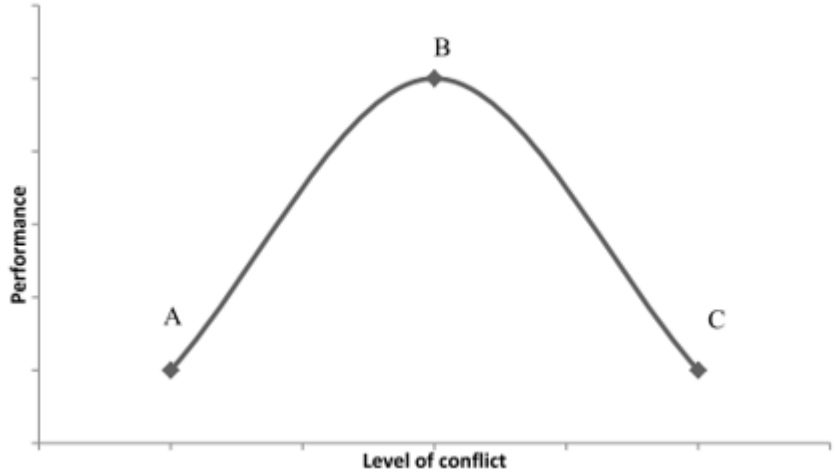

Figure 2.5
Conflict and Group Performance
Source: 2010 Pearson Education, Inc. Publishing as Prentice Hall

Situation A in Figure 2.5 stands for low OC levels where objections to any decision taken by a particular workgroup are unlikely, and in addition, the individual does not want to give new ideas and proposals (Hatch, 1997) not to oppose group ideas. Situation A, the level of conflict is low, or there is no conflict, type of conflict is dysfunctional, the group's inner characteristics are indifferent, stagnant, unresponsive to changes, lack of new ideas and the group's performance level is low.

Situation B, the level of conflict is optimal, the type of conflict is functional, the group's internal characteristics are viable, self-critical and innovative, level of group performance is high. Situation C, conflict level is high, type of conflict dysfunctional, the group's internal features are disturbing, chaotic and unmanageable; the group performance level is low (Elmaghri, 2013).

Robbins also mentioned that conflict is important to perform successfully; however, not all conflicts are great. This school of thought has identified several types of conflict; 1) process conflict, which relates to how the work gets done; 2) task conflict, relates to the content and goals of the work; and 3) relationship conflict, which focuses on interpersonal relationships (Omisore & Abiodun, 2014).

OC the way things are currently is viewed as authentic and unavoidable and a positive marker of powerful organizational administration. It is currently perceived that conflict inside specific points of confinement is fundamental to efficiency. Little or without conflict in associations may prompt stagnation, poor choices, and incapability. Then again, OC left uncontrolled may have destructive outcomes (M. A. Rahim, 2001).

Therefore, Leung said conflict could be sure in workplaces, yet at whatever point a basic or significant conflict happens, it ought to be settled as the undesired level of conflict can be destructive and dysfunctional for the association (Omisore & Abiodun, 2014).

2.3.2 Phases of Organizational Conflict

The OC can be understood better if viewed as a dynamic process. Figure 2.6 outlines the OC phases. Altira (2008) and Elferjany (2004) show that the OC, for the most part, goes through five phases which are documented below (Elmaghri, 2013).

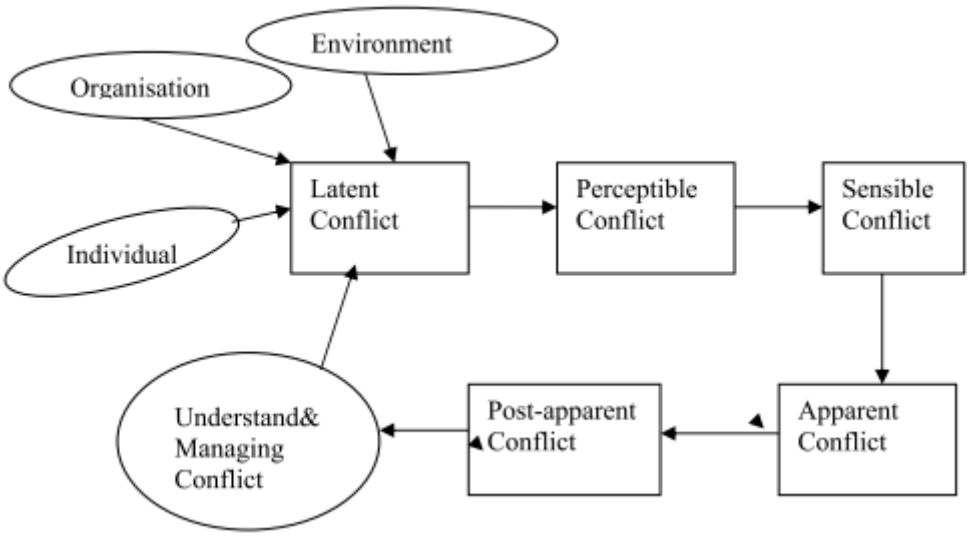

Figure 2.6
Phases of Organizational Conflict
Source: Extract from Elmaghri, 2013

Latent Conflict: at this stage, the conditions are prepared for the event of a conflict. People or groups have the energy of uneven or constrained assets or have diverse objectives or distinctive encounters. These distinctions turn into the fuel of the conflict.

Perceptible Conflict: at this stage people and individuals from the group feel the presence of debate or conflict; they know about past contracts and arrangements that have been proposed such as examinations and embrace to maintain the merger of the conflict (Elferjany, 2004). This level is fundamental because it shows the level at which the groups can agree or not on the solution. Jawad (2000) believes that conflict can be overcome in this phase with communication to take any false assumptions before it becomes worst.

Sensible Conflict: at this stage, the presence of genuine conflict is perceived. There is a contrast between recognizable conflict and sensible conflict in that an indistinguishable person conflict can see that there is a question, yet this does not really prompt nervousness and strain. In any case, the sensible conflict stage excites enthusiastic emotive sentiments among the groups to the conflict, for example, nervousness, stress or outrage. For the most part, detecting a conflict and transforming it into an individual issue is the source of negative and undesirable outcomes in an association (Altira, 2008).

Apparent Conflict: in this stage, the conflicting groups demonstrate an assortment of conflict practices that show up as rivalry or discourse or arrangement. Additionally, conflict may likewise show up as hostility and as physical or verbal viciousness, or as withdrawal or sabotage;

Post-Apparent Conflict: at this stage, conflicting groups are finding the fundamental foundations of this issue and working to determine it. If the effectiveness of conflict management is attractive to all groups, the group of collaborative environments is expected to occur. However, if the organization decides to suppress the conflict as a traditional view of the conflict, this strategy will only encourage temporary transient transfers to be further expanded but this time it

will have more prominent powers and may stop in breaking the relationship (s) between groups (Askar, 1983).

2.3.3 Outcomes of Organizational Conflict

Conflict within an organization normally has a positive and negative impact. In particular, it's important to separate between functional and dysfunctional conflicts. The interactionist perspective does not suggest that all conflicts are great. Comparatively, a few conflicts strengthen the objectives of the group and enhance its execution; these are functional or constructive forms of conflict.

Omisore & Abiodun (2014) quoted that Robbins says the group's goals are supported by functional conflict, and the performance of the group indirectly can be improved. It will give an advantage to the group if the conflict leads to a normal competition where every group works harder to produce more than other does. It is representing a battle between groups to bring out their ideas and goals to enhance the performance of employees and the organization.

According to Kinicki and Kreitner (2008), constructive conflict gives a chance for its member to analyze the problem and overcome it with all the opportunities they have. It can inspire new ideas, learning, and growth among individuals (Omisore & Abiodun, 2014).

Dysfunctional or Destructive Conflict is one of the conflict forms that block the performance of the group to grow. Conflict is viewed as an inescapable and attractive in every organization, but when it is not adequately taking care of, conflict can destroy connections and, in this manner, meddle with the trading of thoughts, data, and assets in groups and between divisions. Kinicki and Kreitner (2008) stated that dysfunctional conflict hinders and prevents organizational goals from being achieved. The productivity of an organization will decline as the performance of an organization is restraint by Dysfunctional conflict. This conflict introduction is described by contending singular interests are abrogating the general enthusiasm of the business. Administrators withhold data from each other. Representatives harm others' work, either purposefully or through unpretentious, conflict-motivated lack of engagement in cooperation (Omisore & Abiodun, 2014).

2.3.4 Type of Organizational Conflict

Elmaghri (2013) in her thesis quoted that Wood et al. (2010) and Luthans (2008) have distinguished sorts of conflicts as per the way of its gatherings, to be specific: 1) Intrapersonal conflict; 2) Interpersonal conflict; 3) IGC; and 4) Inter-OC.

2.3.4.1 Intrapersonal Conflict

Intrapersonal conflict happens when a man must carry out a job that does not match his or her mastery, interests, objectives, and qualities. Such conflict additionally

happens when the part a man hopes to perform, and the part that is requested of him or her by the association are incongruent (M. A. Rahim, 2001). The statement related of goals and expectations are supported by Schermerhorn, et al. that intrapersonal conflict occurs within an individual because of actual or perceived pressures from incompatible goals or expectations (Elmagri & Eaton, 2010). The intrapersonal conflicts are attributed only to those who participate in the project (Beheshtifar & Zare, 2013).

2.3.4.2 Interpersonal Conflict

Interpersonal conflict alludes to differences or contrary qualities between an individual and his or her superior(s), subordinates, and peers (M. A. Rahim, 2001). An individual conflict includes a conflict between two individuals, regularly from a mutual dislike or identity clash. There is additionally conflict inside people, between contending needs and requests to which people react in various ways (Omisore & Abiodun, 2014).

According to Boston University, Faculty & Staff Assistance Office (FSAO), *Causes for work environment conflict can be identity or style contrasts and individual issues, for example, substance manhandles, childcare issues, and family issues. Authoritative factors, for example, initiative, administration, spending plan, and the*

difference in center esteems can likewise contribute (Potluri, Puttam, Pemula, & Butta, 2014).

Cross, Names, and Beck characterize the conflict as contrasts between and among people. The distinctions are made by the conflict, for instance, values, objectives, motives, resources, and thoughts (Omisore & Abiodun, 2014).

2.3.4.3 Inter-organizational Conflict

Organizations manage many bodies in the external condition. Hence, conflicts are not restricted to being just between inner groups, (for example, intrapersonal conflict, interpersonal conflict, and IGC) yet they may likewise happen between an association and its outer condition, for example, with government organizations, buyers, providers and so on. Therefore, some authors such as Abdolmotalleb, 2003 name inter-OC as "external conflict" (Elmaghri, 2013).

Inter-OC comes after having a relationship, and this is related to the nature of goal divergences, dependencies, and the degree of stability in the relationship between the two organizations (Perry & Levine, 1976).

2.3.4.4 Intergroup Conflict

IGC define as the collective incompatibility or difference between two or more divisions, departments, or subsystems in connection with tasks, resources,

information, and so on (M. A. Rahim, 2001). This definition is relevant to the situation that exists in this Shipyard.

Adler believes that conflicting goals, task dependency, dissimilar work orientations, competition for limited resources, and competitive reward systems can cause an inter-group conflict. When the conflict shows up, there will have certain stages covering behaviors such as accommodating and avoiding it. This will result in some changes, either positive or negative effects occur within and between groups (Iravo, 2011).

Rahim (2001) said that a portion of the great cases of organizational IGC is amongst line and staff, sales and manufacturing, production and support, field staffs and headquarters, and labor and administration.

2.3.5 Nature of Intergroup Conflict

IGC is also called interdepartmental conflict. It refers to the conflict between at least two units or groups within an organization. The case of this sort of conflict is conflicted amongst line and staff, marketing and production, and field staffs and headquarters. On uncommon sort of IGC is amongst labor and administration (M. A. Rahim, 2001).

2.4 The Causal Factors of Intergroup Conflict

A recent study on the causal factors of IGC has been conducted, and some of the factors that are causing IGC according to literature are shown in Table 2.2.

Table 2.2
The Factors Causing IGC Since 2012

Factor of IGC	Research of IGC since 2012
Emotion of fear	Omar Shahabudin and McDoom (2012)
Age, educational level, respect, treat to status, lack of trust, unfair treatment, communication and role incompatibility	Elmaghri (2013)
Interpersonal relation and Job satisfaction	Dannii Y. Yeung, Helene H. Fung and Darius Chan (2015)
Cooperation	Oluremi Bolanle Ayoko (2016)
Motivation	Rachel Marie Rafferty (2017)
Material resources and position in society	Ruth K. Ditlmann, Cyrus Samii and Thomas Zeitzoff (2017)

Source: From Literature

The research reference framework was found from Knippen and Green as Figure 2.7 (Henry, 2009). A theoretical framework adopted from Knippen and Green (1999) was used to 1) understand the tacit nature and basic assumptions about the conflict, 2) determine intervention strategies to manage the level of conflict caused by the conflict causal factors, and 3) understand the effects of the intervention on the organizational performance.

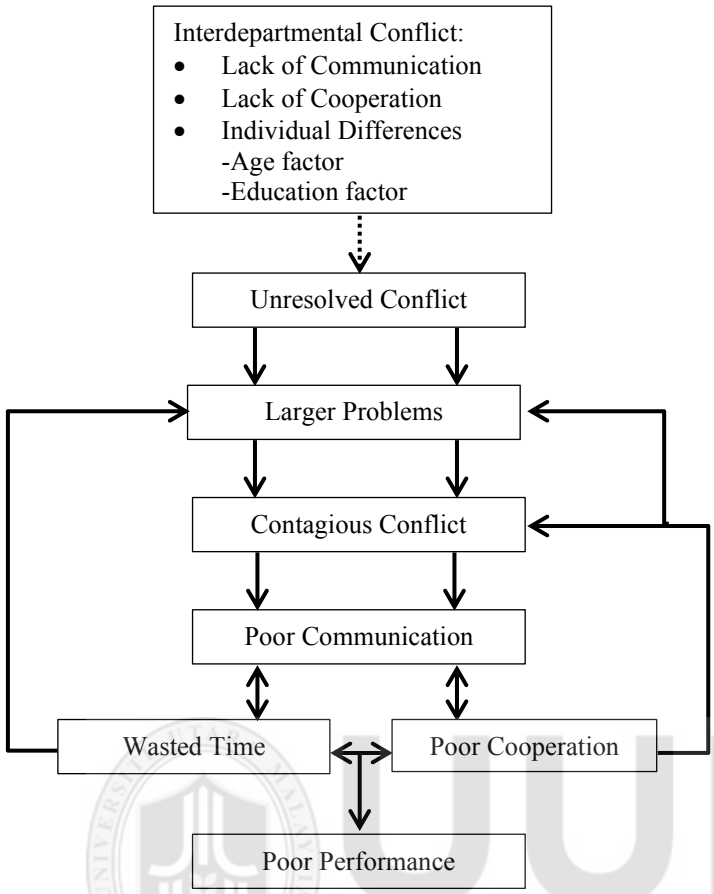

Figure 2.7
Research Reference Framework
Source: Extract from Knippen and Green (Henry, 2009)

2.4.1 Poor Communication

Communication is the process of transmitting information and common understanding from one person to another. Communication in the workplace is critical to establishing and maintaining quality working relationships in organizations (Adu-Oppong & Agyin-Birikorang, 2016). Communication is the

most important method used by any organization in delivering information from management to employees.

A study found that managers spend more than 78% of their working time on communication (Elmaghri, 2013). A 2002 survey of 1,104 employees of organizations in the United States showed that, while managers spend 60 to 80% of their time on operational communication, only 17% said their managers communicated effectively. Organization and communication cannot be separated into parties because there is no organization without communication as well as no communication without organization and both supplement each other when communication channels usually serve as a utilization element to encourage organizational effectiveness and productivity (Muhamedi & Ariffin, 2017).

Numerous barriers lie in the path of clear communication. These barriers frequently result in the misunderstanding and misperception of messages. As a result, it is extremely important for managers to find ways to improve communication. One means of achieving this improvement is to focus on understanding the messages of others (T.Knippen & B.Green, 1999).

2.4.2 Poor Cooperation

Cooperation is defined as follows; (1) a situation in which people work together to do something (UNCTAD secretariat, 2014); (2) the level and extent of direct

interactions between workers that results in or would be reasonably expected to result in positive outcomes for the organization. (Townsend, 2004); and (3) any adaptation that has evolved, at least in part, to increase the reproductive success of the actor's social partners (Gardner, Griffin, & West, 2009).

Effective conflict resolution strategies are, therefore critical to successful interpersonal interactions that are important for increased cooperation and performance at work (Ayoko, 2016). Apology and forgiveness are social skills that are important for conflict management and cooperation after a workplace conflict (Ayoko, 2016). The goals of cooperation are to increase productivity, avoid conflict, and obtain benefits for both parties (Akkas, Chakma, & Hossain, 2015).

2.4.3 Individual Differences Factors

Individual differences stand for the variation or deviations among individuals in regard to a single characteristic or number of characteristics. Many individual differences lead to interpersonal conflict, including personalities, culture, attitudes, values, perceptions, and other differences (Beheshtifar & Zare, 2013). Indeed, Smola & Sutton reported that the differences observed between the two most important generations, which are the baby-boomers and the generation X, may lead to conflicts within organizations (Cornu & Munneke, 2017). The study conducted by Mukhtar, Islam, & Siengthai, (2011) posits that it is found the conflict has an effect on the

quality of education and also education level. Murphy concluded that individual differences could provide diversity in an organization by providing a range of ideas and approaches, but they can be hazardous if not properly handled (Elmaghri, 2013).

2.5 Managing Intergroup Conflict

Conflict management is the path toward obliging the negative parts of conflict while extending the positive parts of the conflict. Conflict management does not really infer avoidance, lessening, or end of the conflict. It includes planning compelling techniques to limit the dysfunctions of conflict and upgrading the productive elements of conflict with a specific end goal to improve learning and adequacy of an organization (M. A. Rahim, 2001). Conflicts in the organization should be resolved properly for the sake of increasing organizational performance (Henry, 2009).

2.5.1 Factors that Assist in Managing Intergroup Conflict

According to Rahim (2001), Max Weber, a distinguished German sociologist proposed a structure of the organization that he called bureaucracy and believed it to be the most efficient form of organization. Bureaucratic organizations must follow several fundamental principles as follows: (1) A well-defined hierarchy of authority; (2) Division of work based on functional specialization; (3) A system of rules covering the rights and duties of employees; (4) A system of procedures for dealing

with work situations; (5) Impersonality in interpersonal relationships; and (6) Selection of employees and their promotion based on technical competence.

Frederick Taylor and his associates believed that the working of an organization would enhance if the principles of scientific management were executed. Some of these standards included fitting of workers to their particular jobs, a continuous and close collaboration of managers and workers, provision of means to inspire each person to the maximum utilization of his or her ability and development of organizational structures to control the various stages of production. Taylor particularly insisted that the conflicts between worker and management would dissolve if these principles were applied (M. A. Rahim, 2001).

2.5.2 Stages of Managing Intergroup Conflict

The management of IGC includes diverting the energies, skill, and assets of the individuals from conflicting groups for synergistic answers for their basic issues or fulfillment of general hierarchical objectives. Managing IGC involves two main stages: conflict diagnosis and conflict intervention.

2.5.2.1 Conflict Diagnosis

According to Algrioty, conflict diagnosis is reflected as an earliest and basic step in managing IGC so as to acquire positive outcomes and to decrease negative results by

analyzing the background of the conflict type and stage and to conclude who are the groups to the conflict and who has the benefit in its continuance (Elmaghri, 2013).

The diagnosis of IGC can be performed by methods for interviews, perception, organization records, and the impression of the organizational individuals. In the event that it is expected to quantify the measure of conflict between two particular departments, for example, marketing and production, the individuals from production might be made a request to react to the IGC things to show how much conflict they think exists between their department and the marketing department (M. A. Rahim, 2001).

2.5.2.2 Conflict Intervention

After all level of conflict has been identified completely with its causal factors, it is following by a new stage called conflict treatment or conflict intervention in order to manage conflict. In this method, the conflict will be persistent if the conflict goes beyond an acceptable stage or stimulating the conflict if it is less than the required level (Elmaghri, 2013).

According to Rahim (2001), some intervention techniques, which can generally be categorized as process and structural, can be applied for the management of IGC. The intervention methods are expected to affect the amount of IGC and the styles of handling such conflict.

2.5.3 Thomas-Kilmann Conflict Mode Instrument

Management scholars have created and recommended the scope of alternatives for dealing with OC. Figure 2.8 frameworks the different parts of the Conflict Resolution Grid, which is the aftereffect of broadly acknowledged research introduced by Thomas and Kilmann (Thomas & Kilmann, 2012).

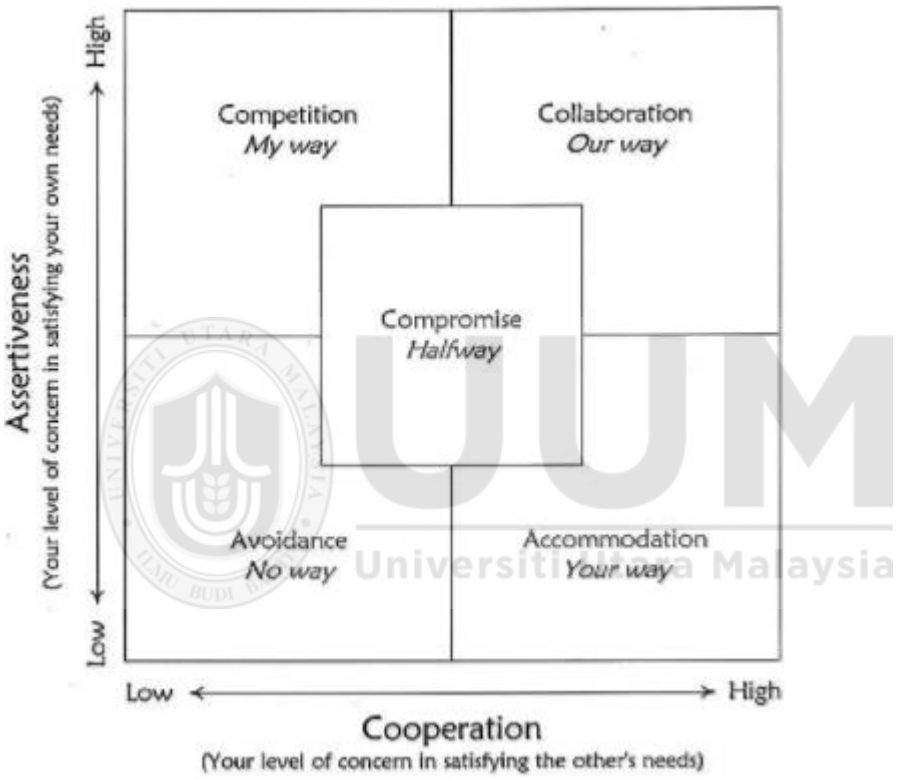

Figure 2.8
Thomas-Kilmann Conflict Mode Instrument
Source: Kenneth W.Thomas and Ralph H.Kilmann, 2012

Thomas and Kilmann recognized a conflict-handling grid involved five conflict management styles in view of two measurements: cooperativeness and assertiveness.

Cooperativeness surveys the eagerness to permit or help the other party to accomplish its objectives or results, while assertiveness is the inspiration of a person to accomplish his/her own particular objectives, destinations, and results. Any of the five conflict resolution styles may be suitable in view of the conditions of the circumstance and the identities of the people included.

Avoiding conflict resolution style is low on both assertiveness and cooperativeness. As it were, the manager is not exceptionally agreeable in helping alternate people to accomplish their objectives, yet nor is he/she forcefully seeking after his/her own favored results in the circumstance. The first issue, conflict, or circumstance is never straightforwardly tended to or settled. However, avoiding conduct may be suitable when the issue is seen by the manager to be trifling. It may likewise be a proper way to deal with utilizing when there is no possibility of winning or when interruption would be expensive.

The contending style of settling the conflict is otherwise called the win-lose approach. A manager utilizing this style, portrayed by high assertiveness and low cooperativeness, looks to achieve his/her own favored results to the detriment of different people. This approach might be suitable when fast, definitive activity is required, for example, amid crises. It can likewise be utilized to stand up to disliked activities, for example, dire cost cutting.

Accommodating Conflict Resolution Style mirrors, a high level of cooperativeness. It has likewise been named as obliging. A manager utilizing this style oppresses his/her own particular objectives, destinations, and wanted results to enable different people to accomplish their objectives and results. This conduct is proper when individuals understand that they are in the wrong or when an issue is more critical to the other side than the other is. This conflict resolution style is vital for saving future relations between the gatherings.

Compromising Conflict Resolution Style is described by direct levels of both assertiveness and cooperativeness. Trade off can likewise be alluded to as dealing or exchanging. It, for the most part, delivers imperfect outcomes. This conduct can be utilized when the objectives of the two sides are of equivalent significance, when the two sides have broken even with control, or when it is important to locate a transitory, auspicious arrangement. It ought not to be utilized when there is an unpredictable issue requiring a critical thinking approach.

Collaborating Conflict Resolution Style is an approach, high on both assertiveness and cooperativeness, is regularly portrayed as the win-win situation. The two sides innovatively work towards accomplishing the objectives and wanted results of all gatherings included. The coordinated effort style is fitting when the worries are mind-boggling, and an inventive or novel blend of thoughts is required. The drawback of this approach is that the way toward teaming up commands genuine

exertion by all gatherings included and it might require a considerable measure of time to achieve an agreement.

2.5.4 Transformation Program

A planned transformation effort by the Group was initiated by establishing the Strategic Management and Transformation Department in September 2009. Its mission is to bring all companies under the Group to be a leading Maritime and Defense solution provider (Yushak, 2017). In order for the shipyard to continue being competitive and sustainable, the top management of Group has chosen the shipyard as a pilot project for the next transformation program based on the Korean best shipyard practices (KBP) which have started in 2011.

The transformation program was reaffirmed in April 2015 with an improved initiative in the shipyard environment. Prior to that, the shipyard had appointed several consultants to research the possibilities of continuing this effort. Several transformation initiatives were planned, and one of them was a 14-month training program which was held locally to acquire the KBP, especially in ship repair work. The focus of the program was to obtain direct exposure through comprehensive in-house coaching from Korean experts (Boustead Heavy, 2014).

Significant results were achieved with the on-time delivery of KD LEKIR on 30 October 2014 after undergoing a Service Life Extension Program and refit program

at the shipyard (Boustead Heavy, 2014). This collaboration was done with MIGHT-METEOR Advanced Manufacturing Sdn. Bhd. (MMAM), a subsidiary of MIGHT, and a Korean - based company, Daewoo Shipbuilding & Marine Engineering Co. Ltd. (DSME).

During the transformation program, several processes were revamped, reviewed and existing organization structure reorganized to suit the new agenda. There are five (5) main areas for Transformation were identified which are; 1) Production Planning & Control, 2) Design for Production, 3) Procurement and Vendor Development, 4) Productivity Innovation, and 5) Health, Safety & Environment. Shipyard's transformation mission can be seen in Appendix F and the main transformation committee, as attached in Appendix G.

This research is significant due to the maritime industry has a part to play in supporting Malaysia's financial development. This is because of the way that the SBSR industry has been particularly distinguished in the Third Industrial Master Plan (IMP3) as an industry which can add to the nation's wealth from the transportation area. (Zainal et al., 2015).

2.6 Conflict and Kurt Lewin 3-Steps Model of Change Theory

Kurt Lewin's 'changing as three steps' unfreezing, changing, refreezing as shown in Figure 2.9 is considered by many as the classic or fundamental approach to

managing change (Adams & McNicholas, 2007; Al-Haddad & Kotnour, 2015; Biech, 2007; Buchanan et al., 2003; Calder, 2013; Cummings, Bridgman, & Brown, 2015; Eastman, 2012; Hossan, 2015; Hossan, Dixon, & Brown, 2013).

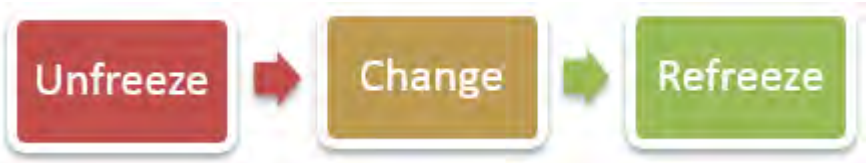

Figure 2.9
Change as Three Steps
Source: Extract from Cummings, Bridgman, & Brown, 2015

Lewin has been criticized by scholars for over-simplifying the change process and has been defended by others against such charges. However, what has remained unquestioned is the model's foundational significance. It is sometimes traced (if it is traced at all) to the first article ever published in Human Relations. Based on a comparison of what Lewin wrote about changing as three steps with how this is presented in later works, we argue that he never developed such a model and it took form after his death. We investigate how and why 'changing as three steps' came to be understood as the foundation of the fledgling subfield of change management and to influence change theory and practice to this day, and how questioning this supposed foundation can encourage innovation (Cummings et al., 2015).

2.6.1 Unfreezing

According to Lewin, human behavior was based on a quasi-stationary equilibrium supported by a complex field of forces. Before old behavior can be discarded or unlearnt and new behavior successfully adopted, the equilibrium needs to be destabilized (unfrozen) (Sarayreh, Khudair, & Barakat, 2013).

2.6.2 Change

This stage also called Transition stage. After the uncertainty created and communicated in the organization in the unfreezing stage, now in change stage, senior management or employees begin to resolve uncertainty and look for new ways to do things. Management and staff start to believe and act in new ways that support the new direction. Employees of the organizations always take some time to embrace the new direction and participate proactively in the change. In this stage, an organization needs to focus on the specific issue of personal transitions in a changing environment. So, appropriate leadership and reassurance are required for successful management of this stage of Lewin's Change management model.

Staff will accept the change and contribute well if employees understand how the changes will benefit them. When the employees come to know that the change is necessary and will benefit the whole organization, then they will involve in it and will do their best. The staff of organization needs time to understand the changes,

and they also need to feel highly connected to the organization throughout the transition period. So, time and communication are the two vital keys to success for the changes to occur. When an organization is managing change, the management of the organization should keep in mind that it requires a great deal of time and effort.

2.6.3 Refreezing

According to Schein 1996, refreezing seeks to stabilize the group at a new quasi-stationary equilibrium in order to ensure that the new behaviors are relatively safe from regression. The main point about refreezing is that new behavior must be, to some degree, congruent with the rest of the behavior, personality and environment of the learner or it will simply lead to a new round of disconfirmation (Burnes, 2004).

2.6.4 Resistance

Miller et al., 1994 quoted that according to the previous scholar, resistance may be shown by decreasing of output, disagreeing or anger, works stoppages, doubtful on proposed change, forces of individual apathy, political alliances, departmental and individual venture on status quo, prevailing cultures and norms, and absence of drive for behavioral change (Ismail, 2018).

A Shipyard in Malaysia has been trying to change but facing employee Resistance to Change. Resistance is attributed to the poor coupling of tasks to its technical core,

creating bad habits leading to thoughtlessness and neglect (Yushak, Dolah, Bakar, & Jamaludin, 2016).

2.7 Possible Solution of IGC and Implementation of PFD

The PFD was introduced by the South Korean Consultant that attached in local Shipyard. It is a production drawing with comprehensive information of dimension, material specification, fabrication, and detailed installation. The sample of the PFD and Non-PFD were attached in Appendix H and Appendix I.

Ship repair is the core activity in the shipyard, providing high quality and extensive depot level maintenance services to the customers. The 3rd Industrial Master Plan identified the Shipbuilding/ Ship Repair (SBSR) industry as a strategic industry that could help transform Malaysia into a fully developed economy by 2020 (Zainal et al., 2015). With the PFD implementation in place, it helps the shipyard to achieve the target.

The former Prime Minister Datuk Sri Najib bin Tun Haji Abdul Razak wrote;

> "*The SBSR industry must continue to be resilient and maintain its competitiveness. All players must prepare to face the challenges in the next few years until the price stabilizes*".

Some of these challenges may be classified as technology, new approaches to improving productivity, overcoming the cost of production and improving capability and competency (Omar, 2015).

2.7.1 Implementation of PFD

The production drawing is commonly used in industries including in the SBSR. Normally the drawing process started with conceptual design, basic design, detail design and production design. In the SBSR, production drawing produced upon completion of detail design where the production design stage is taking place. In the SBSR industry, how friendly is the production drawing prepared is very much depend on the Shipbuilder. Different Shipbuilder preparing different style of production drawing.

In the ship repair works, PFD is very important in assisting works to complete on time if not before the time. Malaysian navy ships were built from various countries like the United Kingdom, German, Italy, France, China and Korea. Among those countries, through shipyard's experience, the production drawing from Korea was the most friendly. Based on that, the Shipyard took the opportunity with the embarkation of Korean Consultant to train the Engineers and technicians in producing PFD.

2.7.2 Solutions of Conflict and Performance of Project

The solution to the conflict related to performance essentially contributes a very significant role to demonstrate the ability of the production to deliver the project within schedule, quality and cost targets.

Completion project within time is one of the major criteria of performance so that ships under repair can be delivered according to the contract. Lehtinen (1999) stressed the ability of the main contractor to deliver the project within time depends largely on the performance of the subcontractors.

Reducing the cost of managing ship repair will increase the benefit of the project as a whole. Subcontracting takes place concerning financial matters, and reduced cost is very important for the shipyard to determine the increase in performance. Mbachu (2008) detailed that among different explanations behind subcontracting is edge and expenses are known from the beginning of the agreement through the subcontractors' quotations, and the test of financing the venture are altogether facilitated by the utilization of subcontractors. Lehtinen (1999) stressed that the performance of the subcontractors could be measured by the ability of the main contractor to deliver the project according to the cost target.

Performance of subcontractor can be identified through the quality of the works delivered. One of the reasons for subcontracting includes the expected high quality

of works, since subcontractors are seen as specialists in their own area (Mbachu, 2008). The ability of the main contractor to deliver the project with the expected quality depends mainly on the performance of the subcontractors (Lehtinen, 1999).

Flexibility is the ability of a firm to respond to and adapt to changes in customer needs or preferences or in changing business climate or environment. Broadly, there are two dimensions of flexibility. One is the ability of a firm to respond in time to the market needs by introducing new products or services and quickly adjust production to any changes in demand. Second is the ability to customize and produce as per customer preferences (Naqshbandi & Idris, 2012). The main customer of the shipyard is the Royal Malaysian Navy which is very concern about the delivery on time for their ships under repair. With the implementation of PFD, this concern is able to be fulfilled.

Nowadays, Industry 4.0 (I4.0) become the main topic in Malaysia to make the industry move forward even faster, especially in SBSR. I4.0 is no longer a future trend. Countries like South Korea, Japan, Norway and the Netherland already embarked I4.0 in their Shipyards (Rahim, 2018). The I4.0 involved the use of big data analytics. Internet of things, cloud computing, artificial intelligence, robotics, additive manufacturing or 3D printing, and systems integration (Rahim, 2018). In this case, BNS is keeping abreast of developments in areas such as the Internet of Things and Big Data Analytics to deliver better customer satisfaction.

The modern theory of conflict is used to resolve the conflict as a strategy (Elmaghri, 2013). In addition, the Kurt Lewin 3-Steps Model of Change, Transformation Program, Kaizen, and Concurrent Engineering have been used as an element to handle the conflict that exists in the shipyard. These conflict interventions are shown in Figure 2.10

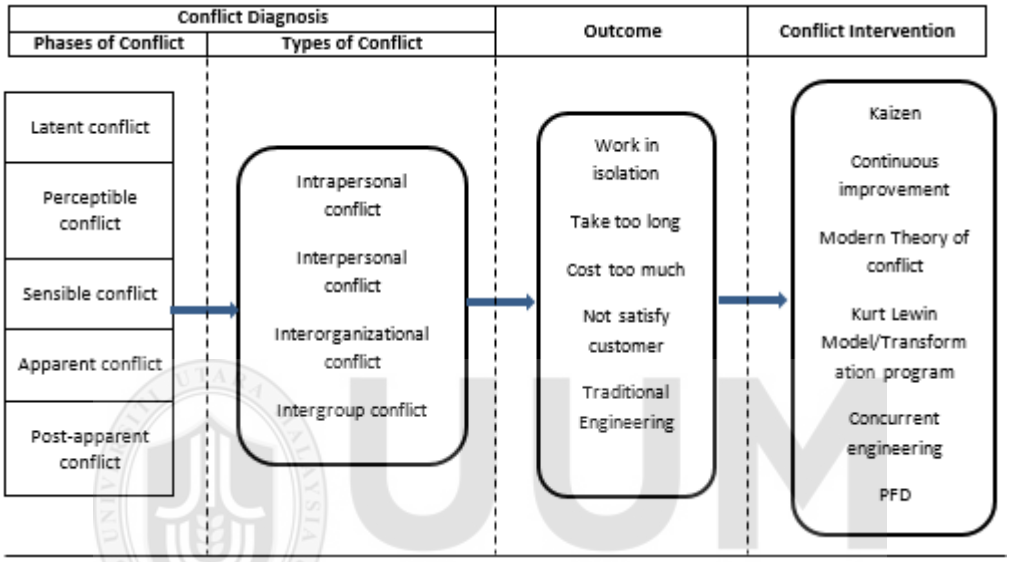

Figure 2.10
Organizational Conflict Research Framework

2.8 Summary

Conflict can be divided into three levels, which are individual level, group level, and organizational level. Conflict in the organization has few phases, and affecting outcomes depend on whether it is constructive or destructive conflict. There is three theory of conflict, namely Traditional theory of conflict, Theory of Human Relations of the conflict and Modern theory of conflict. OC divided into four types which are

intrapersonal conflict, interpersonal conflict, IGC, and inter-OC. The conflict has causes, consequences, and resolution. In the modern theory of conflict view, conflict is inevitable but manageable. Kurt Lewin 3-Steps Model of Change is applied to change from the old method of carryout ship repair work to the new method. Over the Wall Approach or Sequential Engineering (SE) is no longer relevant when the Concurrent Engineering (CE) is introduced. CE combined with the implementation of PFD is very effective as a solution to the conflict and increased performance, especially to deliver ships under repair on time.

CHAPTER THREE
RESEARCH METHODOLOGY

3.0 Overview

Section 3.1 explains about the introduction of research methodology, section 3.2 is about research design, section 3.3 is about case study methodology, section 3.4 is about population and sample of the research, section 3.5 is about data collection strategies, section 3.6 is about data analysis procedure and section 3.7 on the summary of the chapter.

3.1 Introduction

This chapter will describe the best research methods to be used, which assist the researcher in achieving the objective of the research. The objective of the research is to explore the shortcomings and weaknesses of Ship repair that Production encountered in Shipyard by using qualitative as an approach.

In this chapter, it covers the research design, population of the research, sampling methodology, respondents, data collection strategies, instruments, and measurements, etc. It will also include the methodology that has been adopted in order to carry out the research which inclusive of primary data, secondary data and methods to be used to conclude this research. In this research, the qualitative method was used.

One of the most common misconceptions about Qualitative Research is that Qualitative Research does not involve the use of numbers and statistics and as such, cannot contribute significantly to the research results and findings as a whole. Although it may not seem straightforward, Qualitative Research is a methodology that plays a vital role in all research studies, supplementing further understanding of the experiences of the people involved, and determining the root cause of problems and issues that might have arisen (Dodge, 2011).

Through this methodology, qualitative information is gathered from interview sessions and relevant documentation. The development of qualitative research was defined as it may indicate very different things to different individuals, as a means of gathering data in conformity with an interpretivism posture, the semi-structured and open-ended interviews with selected Respondents were conducted individually (Cassell, Buehring, Symon, & Johnson, 2006; Qu & Dumay, 2011).

A qualitative method in this research was characterized by the objective, which is related to understanding some aspects of the academic tradition in sociology, anthropology, history and geography, and their methods, which generate words, rather than numbers, as data for analysis. The common objective of using qualitative research can be referred to the quest for "more insight or a deeper understanding of the phenomenon under investigation," "exploration of experiences," and "development of meaning" (Kapoulas, 2012). In order to fully acquire an in-depth

understanding of complex factors, the researcher is authorized to use qualitative methods of data collection and analysis (Amedy, 1999).

A qualitative element is usually included in the research design: it is also to discover relationships between essential issues, to discover main vital issues and to ensure that appropriate data are collected (Jepsen & Rodwell, 2008).

3.2 Research Design

Creswell (2013) defined research designs as types of inquiry within qualitative, quantitative, and mixed methods approach that provide specific direction for procedures in research design. Decisions regarding what, where, when, how much, by what means concerning an inquiry or research constitute a research design. The research design is a plan by a researcher on what will do from writing the hypothesis and effects on operation due to the completed data analysis are included in the design (Kothari, 2004). During the research design stage, a novice researcher must take into consideration three key factors, literature, research-worthy problem and data (Timothy J. Ellies, 2009). The research design of this study segregated into six stages, as illustrated in Figure 3.1.

Stage 1 – At the first stage, research is at the point of identifying problems. The problem of the delayed stigma of ship completion during a maintenance routine has long been taken up and discussed by both Shipyard and customer, especially RMN.

Various attempts and initiatives have been attempted by the Shipyard to overcome the stigma of ship completion delay during this maintenance routine. Among the efforts and initiatives of the Shipyard is inviting third parties, a company consultant to conduct surveys and further analysis suggesting effective action to be undertaken by the Shipyard. However, many proposals submitted by the consultant are either implemented halfway or unenforceable.

Recently, the transformation program that was introduced in 2011 was re-emphasized in 2013 by bringing in the Korean Consultant to help drive this transformation effort. The transformation vision and mission has been outlined as in Appendix F, and the committee was set up as in Appendix G. In line with this transformation effort, the vision outlined was as follows:

"Higher Standard of Living Great Workplace Pride of the Community"

Mission has been outlined as follows:

"Leading Maritime & Defense Solution Provider in The Southeast Asia / Middle East."

The differences introduced by the Korean Consultant as compared to the other consultants are that they provide guidance not only theoretically but also practically and go hand in hand to the field together with the Shipyard staff. This Korean

Consultant has taught about the smallest of the basic things up to how to perform essential tasks, especially in Engineering and Production. The Korean consultant teaches how to start work once they arrive at the Shipyard, i.e., start the morning cleaning and morning exercise together at all levels of staff. Korean Consultant names this practice with Back to Basic (B2B) leadership by example.

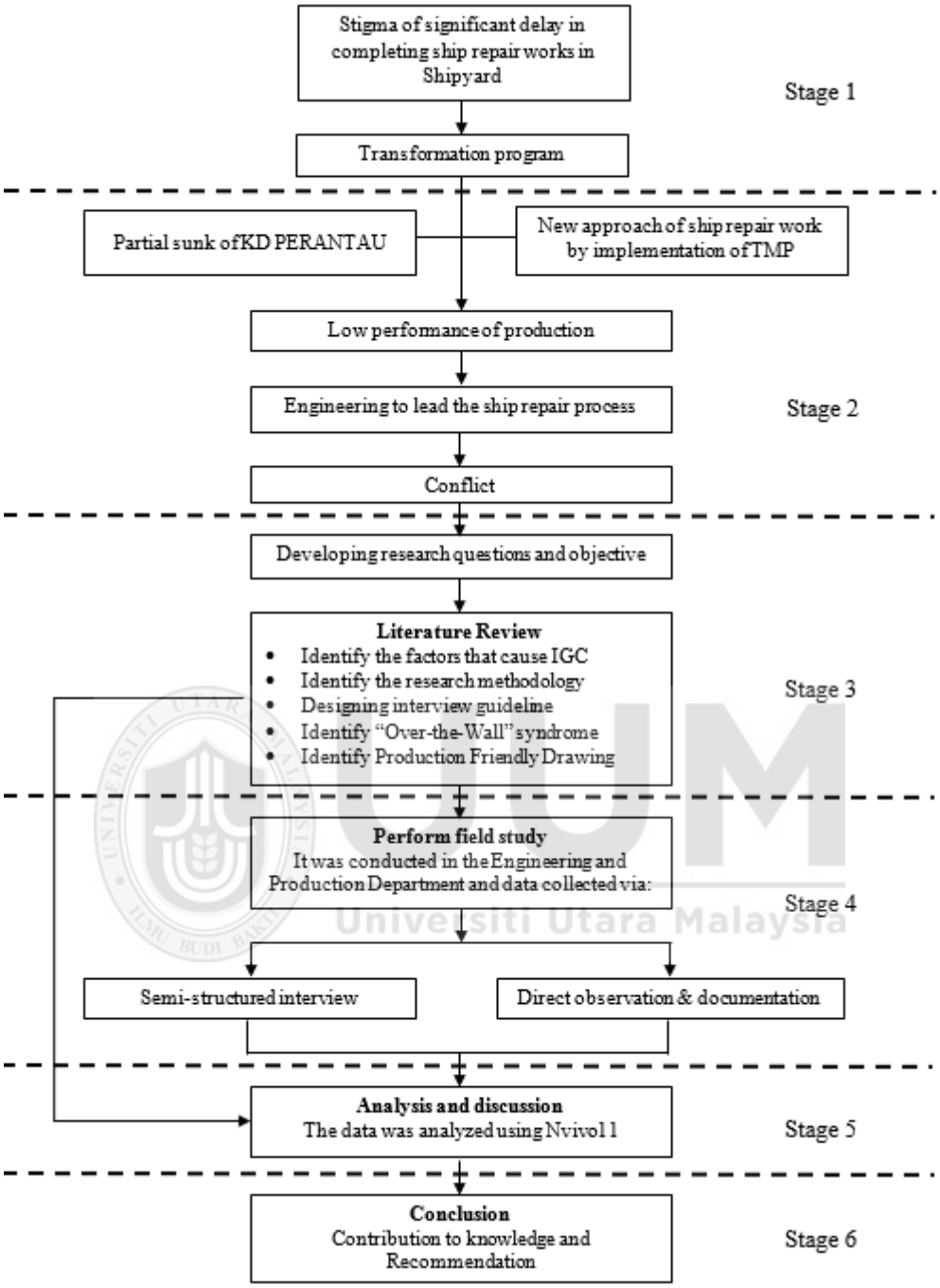

Figure 3.1
Research Design
Source: The idea was adapted from Al Maghri, 2013

Stage 2 – The second stage recorded two significant events that made the transformation program more important. The incident of KD PERANTAU partially sunk in November 2014 and the launched of new ship repair approach of TMP in March 2016 really forced the Shipyard to make a drastic change in doing business. The Korean consultant survey and analysis clearly indicated that low performance of production really existed. This analysis was consistent with the finding of a survey done by Genaxis and ABS. The low performance of Production really needs management to find a way to solve it. Based on KBP, the consultant advised that the Engineering should be involved in the process of ship repair.

Engaging the Engineering to involve in the ship repair process was actually created conflicts, especially caused by role incompatibility in the organization. The role given to Engineering is a new role that Engineering staff have no experience. This is due to the fact that the main role of Engineering was to involve shipbuilding. In implementing this change, Kurt Lewin 3-steps is used unfreeze, change and freeze. During the unfreeze process implemented various causal factor of conflict occurs from aspect individual, behavioral and organizational.

Stage 3 – Research through literature review was conducted to understand the prevailing circumstances in the Shipyard, especially regarding the delay in the

completion of the vessel during the repair. The working environment in Shipyard-oriented work in a silo, sequential process and less cooperation are unhealthy and necessary for change. The literature states that the working environment in this Shipyard is called over-the-wall syndrome. Conflicts that occur in ship repair processes between Engineering and Production are between departments. Conflicts like this are referred to as Intergroup conflict (IGC).

Stage 4 – During the field study, the researcher's position was as Head of Platform at the Engineering Department. The data collection used includes document review, observation, and interview.

a. The position of the Researcher

The position of the researcher with regard to this study are as follows: 1) as the Head of Unit Platform, he is responsible for ensuring that PFD is prepared by the Engineering Department, 2) as a researcher, he is interested in finding out, how difficult for the Engineering to prepare the PFD and why conflict exists during implementation, to find the causality for the conflict and to find suitable way how the relationship between the Engineering department and the production department can be enhanced or improved to address the conflict.

As mentioned above, the researcher is directly involved as Head of Platform at the Engineering Department during vessel repair works. Some of the engineering and production staffs have been identified as respondents in obtaining the necessary information. Since the Department of Engineering staff is under the care of the researcher before, their participation does not cause many problems. However, the participation of the Department of Production was challenging to obtain because it was not under the supervision of the researcher and most of them were busy with ship repair tasks. The details of the informants as per listed in Table 3.5 in Research Methodology.

b. Documents Review

According to Corbin, document review is a procedure of examining documents systematically to develop knowledge and evidence that can support the study (Nguyen, 2012). It is a way of collecting data by reviewing existing documents. These may be in the form of hard copy or electronic and may include reports, program logs, performance ratings, funding proposals, meeting minutes, newsletters, and marketing materials (Pacho, 2015).

Archive data was collected and used in organizational diagnosis. The archiving method does not interfere, and this category of data function reveals the nature and potential causes of organizational symptoms. Some

official records and public documents were collected and studied. Public documents known as secondary data are collected for other purposes and may be regarded as data sources. Secondary data based on documentation studies have been conducted to position research in the context of its history and culture. According to Yin, when reviewing documents, researchers should bear in mind that they may not always accurately reflect reality (e.g., policy and process documents may be out-of-date) (Baškarada, 2014).

Analyze documents such as progress and audits reports, minutes of meetings, discussion notes, schedules, and reviews were conducted to build an understanding of the authority imposed by the organization against its employees. These documents exist in situations where they do not interfere with or change the settings in a way that researchers may find. The documents were also not subject to human desires during interviews or observations (Merriam, 2002). The reviewed documents were as follows: 1) business review in 2013 conducted by Asian Business Solution (ABS), consultancy firm, 2) progress report archive analysis from the New Generation Patrol Vessel (PV) (1999-2010), 3) Littoral Combatant Ship (2014-ongoing), 4) Group Internal Audit Reports (2014-2015), and5) The Board of Inquiry KD PERANTAU.

The complete list of documents has been reviewed, its reliability and validity as an archive source were provided in Appendix J. Data are assessed based on its relevance to research questions, availability, and accuracy. Qualitative analysis of official documents reveals many new sources of understanding.

c. Observations

Observation concerns the planned watching, recording, analysis, and interpretation of behavior, actions, or events (Sekaran & Bougie, 2016). A qualitative observation is when the researcher takes field notes on the behavior and activities of individuals at the research site. In these field notes, the researcher records, in an unstructured or semi-structured way, activities at the research site. Qualitative observers may also engage in roles varying from a nonparticipant to a complete participant. In this study, the researcher was involved in the day to day activities between Engineering, Production and onboard ships. In some situation, field discussions were taken place, especially with Engineering and Production staffs. These observations and discussion are open-ended in that the researchers ask general questions in which allowing the staffs to provide their views (Creswell, 2013) freely. The observations were recorded according to the date, time group and typed into Microsoft word text format and uploaded into the Nvivo11 as source data for analysis.

d. Interviews

The research interview, one of the most important and common qualitative data collection methods, has been widely used in conducting field studies (Myers & Newman, 2007; Qu & Dumay, 2011). In-depth face-to-face interviews with selected key individuals and leaders (Daymon & Holloway, 2011) comprising of middle managers using open-ended questions were conducted; 1) for deep and narrow exploration of a phenomenon, 2) to gauge the deep assumption of change and its effects and 3) develop insight of the values and assumptions that characterize the culture.

Interviews are a relatively common way of collecting data in research, and the data they collect and the forms they take are limited only by the requirements of the research question and the related research design (Marczyk, DeMatteo, & Festinger, 2005). Semi-Structured interviews follow an interview schedule with pre-determined questions but are more flexible than a structured interview in that the researcher use probes designed to elicit further information when necessary (Edwards & Holland, 2013). The purpose of a semi-structured interview is to understand the respondent's point of view, so researcher use open-ended questions to enable the interviewee to talk more freely (Creswell, 2003; Norton, 2009).

Stage 5 – All data collected from the sources of document review, observation and interview were converted into transcribe form. The transcribe data then uploaded into the Nvivo11 application for analysis.

Stage 6 – The final stage of the research was to conclude in term of contribution to the knowledge. The contribution of knowledge was divided into theoretical and practical aspects. The recommendation was provided for the Shipyard and also for the future study.

3.3 Case Study Methodology

The research focused observation on a small sample from the Engineering department and Production department. In the gathering of data for this case research, the qualitative approach was used. Responding to the "how" question, it will try to broaden a complex phenomenon that cannot be read outside the context in which it took place. The objectives are to find relevant issues for theory and to capture process, time-related to the data (Yin, 2014).

Therefore, it allows one to understand why things happened the way they did, and to make changes based on past examples, rather than our own actions. The case research is an in-depth examination of a single case, an individual or an event and the case research is more of an intellectual process, where people examine past examples to learn (Crowe et al., 2011). The selection of this research for the case

research method is based on the problems that occur in this company that requires to be analyzed and improved.

Some misunderstanding case research approach, in general, theoretical knowledge is more valuable than concrete and practical knowledge. It cannot generally evaluate on the basis of individual cases, and it cannot contribute to scientific development.

The hypothesis is created by case research while hypothesis testing and theory development are produced from hypothesis testing using another method. Normally, bias is found in case research which leads to verification, the tendency to confirm bias belief, some aspects of the case studies used as a method of design research and case studies which category each of these studies can usually be achieved (Zainal, 2007). It is difficult to formulate and develop recommendations based on the theory of general and specific case studies (Flyvbjerg, 2006, 2011).

There are two types of cases: single-instance and multiple-instance. In this research work, the multiple-case plan has been selected because it is anticipating answering the three research questions. The primary reason is to infer the influence of the variability of context and to acquire more general research results. Within-case analysis: individual cases are studied to apply a deep familiarity with each instance, which accelerates cross-case comparison. Cross-case analysis: the results of multiple cases are compared and merged.

The purpose of the use in case research method, this method is often practiced but little to understand. A case study is defined as intensive research and a single unit for the purpose of announcing to the whole set is more magnificent. These case studies are often dependent on a few things that have the same conversational evidence, and it is not used in the case research (Gerring, 2004). Therefore, the method used in case research must be adequately understood in a particular way; it is not a way to examine or explore the case or how the causal relationship model. Huge detail is needed to explain the perception.

That is why any research can give an advantage to one another where some people who do not have practical theoretical knowledge in action (especially if they are inexperienced) compared with others who do not have the experience (Flyvbjerg, 2011).

In the case of research, the collecting of data sources for documentation (existing measures and evaluations), statistics, interviews, and surveys. Direct involvement or participant-observation (e.g., Work, meetings, activities, and discussion) and the physically manufactured article (testing the resulting product) are likewise included in data sources. For this case research, the thematic process of gathering up data is using three sources: interview, observation, and document inspection.

In order to determine the research questions for the theoretical approach, it will implement a more effective analysis of this case research. It is clear about sampling, validate/test the instruments, identify natural controls, use multiple sources of data for triangulation, search for alternative explanations and report your data collection process, threats to reliability, method bias. The utilization of all information, including field notes, field protocol, and methods to map data to construct, and also to use quotations or another line of business data. A qualitative case research methodology usually provides a tool for researchers researching complex phenomena in the context of their studies. When the approach is appropriately used, it becomes a valuable method to develop a theory, evaluate and develop intervention programs (Baxter & Jack, 2008).

3.4 Population and Sample of the Research

Population in this research refers to the staffs of Engineering and Production Department, in the Shipyard. The respondents to answer the question have been selected from the person such as the technical manager or production manager who in charge of the planning and execution of the ship's repair works. Based on the list of staffs requested from the Human Capital Management department, the researcher will identify the relevant staff to be selected. In this study the respondents selected were the Head of Unit (HOU) as an authorized person in each discipline and few staffs under them. The HOU and staffs participated in this study were the specialist

in their respective discipline. In term of sample size Patton explains, there are no rules for sample size in qualitative inquiry. Sample size depends on what you want to know, the purpose of the inquiry, what's at stake, what will be useful, what will have credibility, and what can be done with available time and resources (Marshall, Cardon, Poddar, & Fontenot, 2013). In this study, the number of respondents from the Production Department was less as compared to the Engineering Department. This is due to time constraint and lots of ship repair activities at Production Department when the interview is scheduled. However, the purpose of conducting interviews was achieved. Based on the above arguments, this situation is acceptable as there are no rules for sample size in qualitative inquiry (Marshall et al., 2013).

3.5 Data Collection Strategies

Triangulation data can be defined as a combination of similarity of phenomena in a method, and a method metaphor can also be described as a triangulation. The triangles talk about the methods of convergence and generally produce more objective information about effective outcomes. Triangulation of data done from data that collected through multiple sources to include interviews, observations and document analysis (Creswell, 2013). Multiple sources of data or evidence also allow triangulation in order to construct validity for the study (Tobi, 2016).

After the research problem and research design has been determined, the task for collecting data begins. There are two types of data, which are primary and secondary data to be considered before deciding on a method to be used for the research. Primary data are genuine because the data are gathered afresh. Secondary data are different from primary data because it is gone through the process of statistical due to the data collected by someone else. According to the type of data collection that has been decided by the researcher, he also must have prepared the method of collecting the data. Primary data are entirely different of secondary data in term of data collection where the primary data are collected initially and secondary data the nature of data collection work is merely that of compilation (Kothari, 2004).

There are three components in research design; interview, observation and document review form a data collection strategy to answer research questions.

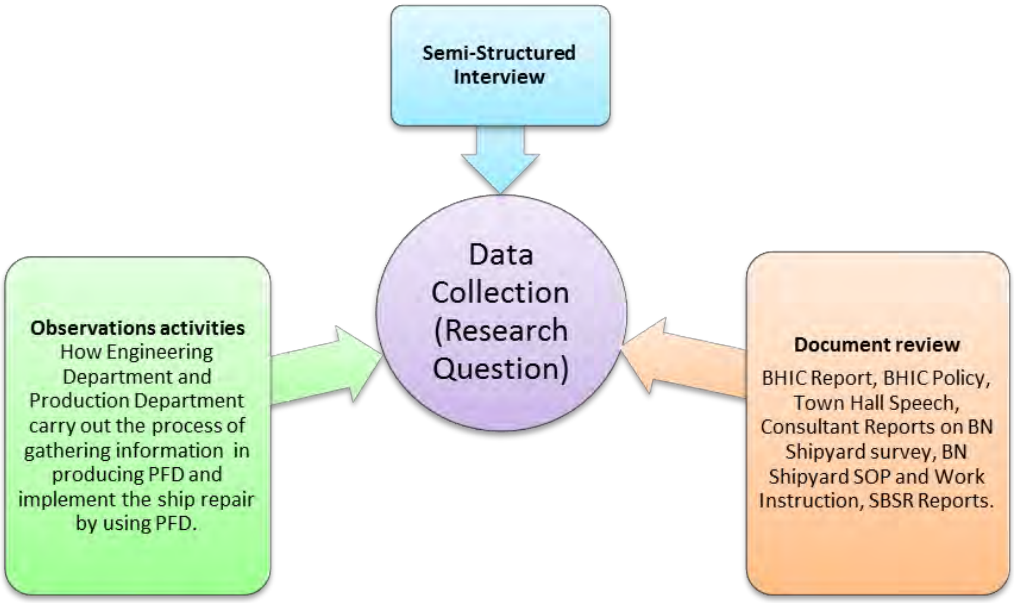

Figure 3.2
Research Question Adaptation for Convergence of Evidence
Source: Adapted from Dasuki, 2015

The convergence of the evidence, as shown in Figure 3.2, illustrates where all the inputs data from all three sources; through semi-structured interviews, document review and observations of work process flow. The observation activity will involve the participation of the entire Engineering department and Production department in the course of its work.

With the research design of this research, it is advantageous for the researcher to obtain all the necessary information. Every question should be about the objectives

of this research. Data collection strategies as presented in Table 3.1 related to each research question.

Table 3.1
Research Question and Data Collection Strategies

Research Question	Data Collection Strategies		
	Interview	Observation	Document review
RQ1: What are the possible causes that contribute to the conflict between the Production Department and the Engineering Department ?	√	√	√
RQ2: In what way, can the relationship between the Production Department and the Engineering Department be enhanced or improved to address the conflict?	√	√	√

3.5.1 Interview Approach

Interviews have been chosen as the main method of data collection and conducted using semi-structured questions. The qualitative interview is one of the most important data gathering tools in qualitative research (Myers & Newman, 2007). By choosing a semi-structured interview, the interview process is not very strict, unlike the structured interview. In a semi-structured interview, the purpose is to explore the subject matter in the context of a free model and allow respondents to comment on their opinions and thoughts on their own experiences. Researchers need to pay careful attention to the Respondents' responses and follow their directions in using semi-structured interviews (Dagbjartsdóttir, 2012; Dodge, 2011). The target respondents from the Engineering Department and Production Department as shown

in Table 3.2 and Table 3.3. Respondents from the Production Department are less compared to respondents from the Engineering Department due to time constraint and lots of ship repair activities at Production Department during the period of the interview was conducted.

Table 3.2
The Target Respondents From Engineering Department

Section	No of Respondents	Total Staff in Engineering Department
Hull	3	6
Mechanical	4	5
Electrical & electronic	3	5
Material	1	5

Source: Data from the Engineering Department.

Table 3.3
The Target Respondents From Production Department

Section	No of Respondents	Total Staff in Production Department
Hull	1	35
Mechanical	1	55
Electrical & electronic	1	34
Material	1	11

Source: Data from Production Department.

In addition, the phrasing of questions can be changed, explanations given and for some respondents, where applicable, some questions can either be omitted or added to the interview. Dodge (2011) mentioned that the interviews should choose suitable respondents as well as the sample size for the interviewing session, this is one of the rules that need to be conducted carefully. The questions were based upon the understanding of the Engineering and Production work processes and job description that had been developed. Open-ended discussion and questions were used during the

interview session to persuade the respondents to act and respond freely and honestly to the entire question (Dagbjartsdóttir, 2012; Dodge, 2011).

The interview process was as follows: Respondents were contacted by e-mail first to schedule an appointment, and the researcher will briefly explain the purpose of the research, research the methodology, and explain the expected benefits to the respondents. Respondents can continue to attend interviews at any time to withdraw and to ensure confidentiality protection.

As an addition, all respondents were informed about the risks involved in the research (Phua & Rowlinson, 2004). Jepsen & Rodwell (2008) mentioned that a good interview practice is always carried out in private, usually in an office room within the respondent's general work area.

Next, the interview was conducted by the direct communication of face to face. During the process of interview, all information is recorded in order to avoid loss of information; in the subsequent interview transcribed on paper, the respondent verified. As an interview guide, the leading topics must always keep in mind while allowing any questions from the participant. Semi-structured interviews were conducted during the interview session. In the interview process was recorded to ensure that the information will not be lost; in the subsequent interview transcribed

on paper, the respondent verified. The main topics are always kept in mind as an interview guide while allowing any questions that may arise from the main issue.

Semi-structured interviews were conducted during the interview session. Interviews are audio recordings and interview sessions that are completed were written within one day.

The information contained in the transcriptions were verified with all the respective respondents. All confidential information gathered were only used in this research. Copies of the written transcription of the interviews were then given to all the respondents. Respondents were guaranteed complete secrecy whereby their responses were kept entirely confidential (Jepsen & Rodwell, 2008; Phua & Rowlinson, 2004).

All data were reviewed and coded for emerging topics and categories. In Nvivo 11, encoding is part of the detailed data of the information assigned by using words or phrases taken from that part, in the appropriate manner. In addition, Nvivo 11, a software program for qualitative data analysis, is used to assist in the organization of content, coding, and subject identification. This entry describes this practice and some of the applications and issues associated with them.

The semi-structured interviews were divided into five parts; each part of the question is represented as the key that should be asked in the interview session. The objective of the sequence of interviews was to identify the critical subject believed to have a significant impact on their work performance and decision making (Jepsen & Rodwell, 2008).

The details of the interview guideline are as follows: Part 1, the introduction, and demographic information are related to the work requirement in any interview process. For some undergraduate students who do their research to research about individual information management behaviors, a personal profile is one of example to explain in detail the year of research, sexual category, age, knowledge level, and subject. This is important in research as proof that the respondents have the authority or the information to offer for the research topic (Jepsen & Rodwell, 2008).

Indirect questions are used to develop more precise descriptions from general statements especially in related topics of discussion (Qu & Dumay, 2011). The questions that have been considered as being an important key to getting the information regarding the main topic of discussion for this research are stated in part 2 and part 3 of the interview guidelines.

Part 2: Research Question No.1, the intention is to search for any information regarding possible causes that attribute toward the conflict. This part is also to

identify conflict in any work observation activities during the work construction process. This section is really significant because the respondents were given the understanding of conflict in the project. The example of the questions are as followings:

1. Do workers in your organization encounter problems resulting from **poor communication** or due to lack of information? (Elmaghri, 2013).

2. Do workers in your organization encounter problems resulting from **poor cooperation**? (Elmaghri, 2013)

3. Does the difference in **age** among workers have an impact on the level of conflict in your organization? (Elmaghri, 2013)

4. Does the difference in **educational level** between employees have an impact on the level of conflict among them in your organization? (Elmaghri, 2013)

5. In your opinion, are there **any other factors** causing the conflict between these two departments?

Part 3: Research Question No.2 was a set of questionnaires that were designed to gather details on the tasks of finding a solution and compiling all related information with regards to conflict and performance of the production. The example of the questions are as follows:

1. In your opinion, the above-mentioned conflict belongs to cognitive conflict (task-related conflict) or affective conflict (relationship-related conflict) or any other kind of conflict? (Leung, 2010)

2. In your opinion what is the best way to resolve the conflict between the Production and Engineering Department ?

Part 4: Closing the interview session and expressing appreciation to the respondents. In order to establish effective research findings, it is imperative that accurate information was gathered during the interview sessions and that questionnaires were answered honestly by respondents. Additional questions to instigate open suggestions by respondents to improve or change certain aspects of the current situation or procedures will also provide vital information to formulate recommendations for improving upon the conclusion of the research.

For the purpose of the research, interview sessions were ended with a kind reminder to the respondents with the following statement: “If you happen to come across

further ideas on the issues we just discussed, you are welcome to call me" or "Is there anything else that you would like to offer that I did not specifically ask for?"

3.5.1.1 Selection of Respondents

The respondents would be the persons who are qualified and given the responsibility of the Engineering Department and Production Department. Therefore, in this research, respondents will consist of staffs involved in ship repair works from the above departments to represent the population. The research starts by identifying qualified individuals with given responsibility which are captured as a targeted sample as presented in Table 3.4. The respondents are selected from four discipline which are Hull, Mechanical, Electrical & Electronics (E&E) and Material.

Table 3.4
The Unit of Analysis

Engineering Discipline	Engineering Department	Production Department
Hull	3	1
Mechanical	4	1
E&E	3	1
Material	1	1

Source: Data from HCM Department

Several requirements have been identified to facilitate the research in achieving its objective. It focuses on the selection of qualified respondents with given responsibility. These individuals are experienced in planning and implementation of

ship repair works in the department they belong and facing it every day. Table 3.5 details the profile of respondents.

Table 3.5
Table Details of the Respondents

No.	Respondent	Job Title	Experience	Department	Section
1.	R#1	HOU	22 years	Engineering	Hull
2.	R#2	TE	10 years	Engineering	Hull
3.	R#3	TE	5 years	Engineering	Hull
4.	R#4	HOU	16 years	Engineering	Mechanical
5.	R#5	TE	5 years	Engineering	Mechanical
6.	R#6	TE	4 years	Engineering	Mechanical
7.	R#7	TE	4 years	Engineering	Mechanical
8.	R#8	HOU	21 years	Engineering	E&E
9.	R#9	STE	21 years	Engineering	E&E
10.	R#10	TE	6 years	Engineering	E&E
11.	R#11	HOU	25 years	Engineering	Material
12.	R#12	HOU	20 years	Production	Hull
13.	R#13	HOU	21 years	Production	Mechanical
14.	R#14	HOU	15 years	Production	E&E
15.	R#15	HOU	17 years	Production	Material

Source: Data from the Engineering Department

3.5.1.2 Respondents from the Engineering Department

A respondent from the Engineering Department was chosen from the highest hierarchy in each engineering discipline which holds a position of Head of Unit or Head of Section. There is also executive staff involved as an engineer in various disciplines. There are four (4) disciplines or Unit involved as respondents which are Hull, Electrical & Electronics, Mechanical, and Material.

3.5.1.2.1 Respondent from Hull

The details respondent of Head of Unit Hull is as Table 3.6.

Table 3.6
Details Respondent of HOU Hull

Criteria	Remarks
Position	Head of Unit
Age	42 years
Education	Diploma in mechanical engineering
Experience	Working for the company for 22 years.
Involvement in expediating PFD	KD PERANTAU restoration program in 2014

Source: Data from Human Capital Management

3.5.1.2.2 Respondent from Electrical & Electronics

The details respondent of Head of Unit E&E is as Table 3.7.

Table 3.7
Details Respondent of HOU E&E

Criteria	Remarks
Position	Head of Unit
Age	48 years
Education	Diploma in electrical engineering
Experience	Working for the company for 21 years.
Involvement in expediating PFD	KD PERANTAU restoration program in 2014

Source: Data from Human Capital Management

3.5.1.2.3 Respondent from Mechanical

The details respondent of Head of Unit Mechanical is as Table 3.8.

Table 3.8
Details Respondent of HOU Mechanical

Criteria	Remarks
Position	Head of Unit
Age	39 years
Education	Degree in marine engineering
Experience	Working for the company for 16 years.
Involvement in expediating PFD	KD PERANTAU restoration program in 2014

Source: Data from Human Capital Management

3.5.1.2.4 Respondent from Material

The details respondent of Head of Unit Material is as Table 3.9.

Table 3.9
Details Respondent of HOU Material

Criteria	Remarks
Position	Head of Unit
Age	47 years
Education	Diploma in computer engineering
Experience	Working for the company for 25 years.
Involvement in expediating PFD	KD PERANTAU restoration program in 2014

Source: Data from Human Capital Management

3.5.1.3 Respondents from the Production Department

A respondent from the Production Department was chosen from the highest hierarchy in each engineering discipline which holds a position of Head of Workshop or Unit. There are four (4) discipline or Unit involved as respondents which are Naval Architecture, Electrical & Electronics, Mechanical, and Material.

3.5.1.3.1 Respondent from Hull

The details respondent of Head of Unit Hull is as Table 3.10.

Table 3.10
Details Respondent of HOU Hull

Criteria	Remarks
Position	Head of Unit
Age	42 years
Education	Diploma in Mechanical Engineering
Experience	Working for the company for 20 years.
Involvement in expediating PFD	KD PERANTAU restoration program in 2014

Source: Data from Human Capital Management

3.5.1.3.2 Respondent from Electrical & Electronics

The details respondent of Head of Unit Electrical & Electronics is as Table 3.11.

Table 3.11
Details Respondent of HOU E&E

Criteria	Remarks
Position	Head of Unit
Age	37 years
Education	Degree in Electrical Engineering
Experience	Working for the company for 15 years.
Involvement in expediating PFD	KD PERANTAU restoration program in 2014

Source: Data from Human Capital Management

3.5.1.3.3 Respondent from Mechanical

The details respondent of Head of Unit Mechanical is as Table 3.12

Table 3.12
Details Respondent of HOU Mechanical

Criteria	Remarks
Position	Head of Unit
Age	51 years
Education	Master's Degree
Experience	Working for the company for 17 years.
Involvement in expediating PFD	KD PERANTAU restoration program in 2014

Source: Data from Human Capital Management

3.5.1.3.4 Respondent from Material

The details respondent of Head of Unit Material is as Table 3.13.

Table 3.13
Details Respondent of HOU Material

Criteria	Remarks
Position	Head of Unit
Age	43 years
Education	Degree in Business Study
Experience	Working for the company for 17 years.
Involvement in Expediating PFD	KD PERANTAU restoration program in 2014

Source: Data from Human Capital Management

3.5.1.4 Interview Process

Before the interview was conducted, the respondents were explained about 1) identity interviewee's confidentiality, 2) permission to record audio interviews to be conducted, 3) permission by shipyard management on the interview conducted by the researcher and 4) the opportunity for interviewee to ask any questions relating to the interview purpose before it starts. A protocol of interview form with provisional questions was issued before the interview conducted as Appendix K.

The first step was to conduct a set of fifteen (15) face-to-face interviews, in which a cross-section of managers was asked a set of two basic questions: 1) Why do conflicts happen between Production Department and Engineering Department? and 2) In what way a relationship can be enhanced or improved between two departments to address the conflict? In order to get more information, the questions always end with "Do you have any additional comments?" The questions forwarded to the interviewees were constructed to fulfill the research interest. Open-ended questions were asked, and interviewees were given the opportunity to respond before

proceeding to the next question. Questions were rephrased when interviewee did not respond explicitly to the question asked. Further clarification with examples was requested to remove ambiguity and when the response was too general.

The interviews were performed with a single respondent and ranged from about 30 to 45 minutes. The respondents were guided around focal issues through the use of guiding questions, to elicit and document their perspective. The interviews were conducted using an interview guide with topics grouped into three themes and sub-themes (Table 3.14). Guiding questions were necessary to facilitate the researcher to define a concept operationally. Operational definitions concretize the intended meaning of a concept in the study and provide some criteria for measuring the empirical presence of the concept (Berg 2007).

Table 3.14
Research Questions and Interview Guiding Questions

Research questions	Provisional/guiding questions	Defining
RQ1: What are the possible causes that contribute to the conflict between the production department and the engineering department?	a. Do workers in your organization encounter problems/conflict resulting from poor communication or due to lack of information? b. Do workers in your organization encounter problems/conflict resulting from poor communication? c. Does the difference in age among workers have an impact on the level of conflict in your organization? d. Does the difference in educational level between employees have an impact on the level of conflict among them in your organization?	The significance of conflict causes

	Follow-up questions: d. In your opinion, are there any other factors causing the conflict between these two departments?	
RQ2: In what way, can the relationship between the production department and the engineering department be enhanced or improved to address the conflict?	a. In your opinion, the above-mentioned conflict belongs to cognitive conflict (task-related conflict) or affective conflict (relationship-related conflict) or any other kind of conflict? b. In your opinion what is the best way to resolve the conflict that exists between Engineering and Production Department?	Method

Source: Author

3.5.1.5 Transcribing and Archiving of Interview Data

The interview data were transcribed immediately after the event into transcripts. Interviewees approved the transcripts of interviews. All interviews were recorded in a digital recorder and transferred to a notebook, given a filename for archiving before transcribing. Transcribing the audio recordings was carried out by audio play-back using Windows Media Player. The data was then written and transcribed using a notebook into a Microsoft Word file. The Microsoft Word file is then converted into Pdf format and transferred to Nvivo11 for analysis.

3.5.2 Observation

Meetings, discussions, brainstorming and presentation cycles are especially frequent in the use of Action Research (AR) cycles. In doing so, the ORJI framework becomes the guideline. Coghlan (2009) notes that Schein introduces a method by which researchers may reflect the basis of their experiences, cognition, judgment,

and observation, response, judgment and intervention (ORJI) role. Schein created a model directly related to observation with the purpose of bringing attention to emotions and reactions generated from observations (Cannata, 2013). The list of observation during ship repair works was in Table 3.15.

Table 3.15
List of Observation during Ship Repair Works

Activities	**Observers**	
	Engineering	Production
Identification of the problem by (workshop) Production Department		√
Send to Project Management Team (PMT) for acknowledgment		√
Check on the sufficient of the document		√
Join survey	√	√
Issue Site Technical Query (STQ) to the Engineering Department		√
Accepted by Engineering	√	
Record and control	√	
Evaluation process on major or minor modification	√	
Indicate time frame	√	
Submit approved STQ by Engineering	√	
Carry out ship repair work		√

The observation of this research begins in December 2014 until December 2016. The observations involved the restoration activity of KD PERANTAU and the implementation of TMP that was a new approach in ship repair works. The observation was referred to the actual activity of gathering friendly information on design and materials specification and material from the production workshops and onboard ship. The researcher normally followed and participated in all activities with the functional engineering team. The observation data normally recorded in the

notebook with the date, time and type of activity. All data were typed into Microsoft word text format and uploaded into the Nvivo11 as source data for analysis. The significant causal of conflict that observed was as in Table 3.16.

Table 3.16
The Causal Factors of Conflict Between Engineering and Production

Current State	Forecasted Desired State
Age gap – Engineering produced PFD without consulting Production	Both department staffs have regular discussion or meeting and work together.
Educational Level – different orientation of doing work; Engineering used drawing, but Production utilized experience, sketch, photo and as per sample.	Both departments using PFD in performing works.
Lack of Trust – production reluctant to utilize PFD produced by Engineering.	Production using PFD in carrying out works.
Lack of Respect – experience production staff assumed young Engineering staff still fresh	Improve understanding and respect between them.
Lack of Communication – less communication between the two departments.	Good communication between the two departments.
Role Incompatibility – Engineering still learning the new role of Production works.	Engineering gets used with the new role.

Source: Extract from literature

3.5.3 Document Review

The work was divided into details for each respondent to be included in the review process. The comparison between the written document and the actual process was validated at this stage. This role was more accurate in triangular data analysis.

The importance of examining written texts and any artifacts is that they are authentic evidence and exist in such a way that different spoken languages are physically persistent and therefore can be separated in space and time (Ahuja, 2007).

Document clustering techniques are widely recognized as a useful information tool for reorganizing data and information (Kishida, 2003) in documents that are mined and collected. There are various ways to compile and review all the information, in particular, that has been recorded, as indicated by previous researchers.

In this research, all the information was summarized in a single folder, using a simple process of collecting all the relevant files, and then viewing them one by one. Next, the process of analyzing all the information that has been collected in one folder was facilitated using the Nvivo11 software.

3.6 Data Analysis Procedure

Data analysis procedures were started once the collected data from various sources were converted into transcribed form. This includes interview information from audio tapes, notes, etc. Thereafter, the data reduction process begins with the reading and re-reading of the transcribed data.

Next, identifying the emerging themes was done by reading each transcript during the reduction process. The files were placed in the same folder for ease of process analysis. Subsequently the "open coding procedure" was initiated to identify the emerging themes. Upon identification, the theme was separated accordingly in order to avoid any misplacing of information in the system.

There are six steps in the data analysis (Creswell, 2013). The analysis is in linear order as the cognitive operation is not merely static; organize and set up the data for analysis, read through the data, detailed analysis with coding process, the coding process to get a description of the scene or people as well as categories of the data for analysis, advance how the description of the compositions are interpreted in the qualitative narrative and interpret the significance of the data.

For the first step, organize and prepare the data for analysis. For this step, gather and review all information from audio records and interview documents, then transfer all the information into a single transcript document. Then, read through the data. The next important step is to discover the overall meaning in the information to achieve a general sense of the ideas and information given by the respondents. A detailed analysis begins with the coding process. Then, all information is organized into categories and labeling all the information with conditions by referring to the information given in the interview sessions. The coding process will describe the categories for analysis.

In this research analysis, codes were generated for all the information and all categories were analyzed in a general description in Nvivo 11. As a Qualitative Data Analysis (QDA) application, Nvivo 11 requires knowledgeable skills to attain maximum accuracy out of the research findings. However, learning how to leverage from Nvivo 11 was made easy with the tutorials that were packaged with the

software while workshops and training were readily provided for a more impressive outcome by using special techniques.

3.6.1 Data Reduction

Data reduction is the first phase of qualitative data analysis. Data reduction involves the process of selecting, simplifying, and extracting themes and patterns from written field notes, transcripts, and other available resources.

The objective of data reduction is to reduce the data set. Lin, Tsai, & Ke (2014), mentioned that the data reduction would result in the data itself becoming less important, but the reliability of the original data set is strongly preserved. The result will keep less data count and more amount of information, for example, the result of interview transcripts while searching for similarities and differences in themes.

Code names were assigned to those themes that were detected and then organized into categories of related topics, patterns, concepts, and ideas that emerged from the respondents' perspectives.

3.6.2 Data Display

The following phase of data analysis is data displays, tools in showing all the solutions. The data displays were used to submit all the data into an accessible summary in order to arrive at the resulting conclusion. There are several numbers of

methods that can be used for arrangement and classification (Xia & Gong, 2014). The final decision for the techniques used in the field was determined according to the outcomes of data reduction. Once the appropriate technique was identified, data displays were created depending on each individual information, as well as in each case, to demonstrate findings across all available sources of information.

3.6.3 Data Drawing and Verification

The final phase of data analysis consists of drawing initial conclusions based on cross-case information displays and then subjecting these initial conclusions to verification procedures.

Conclusions were drawn reliably according to the methods and findings of this research (Xia & Gong, 2014). These routines were meant to affirm that the findings were appropriate before they were labeled as conclusive. In qualitative research, the results were verified and deemed appropriate by evaluating their trustworthiness.

3.7 Summary

This chapter elaborates the methodology of the research, initially adopting the Qualitative Research approach to complement the Research Questions. Research procedures, surveys, and questionnaires for interview sessions were prepared thoroughly prior to conducting the research at the site. Upon accumulating useful data through information gathering, the involvement of employees from the

Production department and Engineering department selected according to their appointed job description is the most relevant factor in building a research design and helping the research by their contribution. These respondents play a crucial responsibility in order to provide useful feedbacks with regards to the current procedures through these research interview sessions. Research information is also gathered through other means of data accumulation including observation of work activities, inspection work monitoring, scrutinizing of inspection work records and reports and various other modes of information gathering that would be used as qualitative data for further research analysis.

CHAPTER FOUR
RESEARCH FINDING

4.0 Overview

The chapter starts with section 4.1 which is the introduction of research finding, section 4.2 on the describing the case study, section 4.3 on the research work process, section 4.4 on the profile of respondents, section 4.5 problems encountered during research, section 4.6 organization performance and section 4.7 is about the summary of the chapter.

4.1 Introduction

This chapter elaborates further the results and findings of the qualitative study in which the interview process including procedures and observations are reviewed based on these categories and identified patterns for the entire research. The primary method carried out was the face-to-face in-depth interview, with the objective to get respondents to answer all the research questions with the utmost accuracy.

Interviews were conducted at the respondents' work premises at their convenience and comfort. Part of the interview sessions included formulating questionnaires from which the participant's profile can be derived and developed. Also included in the interview process is a summary of the group characteristics of the respondents.

As stated in chapter one, the main purpose of this study is to introduce an intervention to resolve the conflict that exists between the Engineering Department and Production Department. In order to achieve this aim, two research questions were designed:

- What are the possible causes that contributed to the conflict between the Production department and Engineering department?

- In what way can the relationship between the Production department and Engineering department be enhanced or improved to address the conflict?

In the final section of this chapter, a presentation of the research findings was derived from the interview sessions with the aid of Nvivo11 to summarize the following; examples of raw data collected, discussion of the themes generated from the data and how the results relate to the key construct of the overall research.

4.2 Describing the Case Study

The general research objective is to understand the dimensions of units' detail function which involved in ship repair and how the performance in term of delivery of the ship could be made timely. The study focuses on the implementation of PFD, and the conflict arises between the Engineering Department and Production

Department. Eight units have participated in this study. The details job descriptions of the participating Head of Unit are as follows:

4.2.1 Unit of Hull – Engineering Department

This unit consists of three sections which are Naval Architecture, Hull Structure, and Accommodation Outfits. Provision of technical advice and support on the design, engineering and compliance reviews associated with Hull of the ship complying with the standard requirement, deliver timely and cost-effectively.

Duties and responsibilities are as follows; 1) to provide leadership on the Hull matters for the task undertaken by the Engineering Department, 2) to control, coordinate, monitor and report on Hull activity for the job assigned and delivered timely, 3) responsible for reviewing the output produced by subordinates such as drawings, calculation, and report, 4) to develop clear defined lines of communication and scope of work between subordinates, 5) liaise with all relevant section to ensure smooth work processes with the task assigned, establish and maintain a good relationship with Customer and his representatives, 6) monitor and propose improvement plans to enhance quality service provided, 7) to ensure good engineering practices applied in accordance with ISO Standard and company policies and 8) responsible for determining and complying with all Health and Safety policy

and procedures at the workplace and ensuring all employees under the section comply with such policy, regulations and procedure.

4.2.2 Unit of Mechanical – Engineering Department

This unit is to manage, monitor and administer technical expertise under the Mechanical Engineering discipline for any assigned project activities directly related to technical services, aimed at achieving timely and cost effective by compliance to the implemented standards and guidelines in accordance with contract/order requirements.

Details duties and responsibilities are; 1) manage a team of technical experts responsible for duties and tasking within the marine engineering discipline, 2) monitor, review, and update of various technical, class rules and regulations documents compilation pertaining to marine/mechanical equipment and system for contracts use under his Ship Work Breakdown System (SWBS) scopes, 3) manage and monitor the selection of new procurement for hardware and software required for the design works, inclusive upkeep and upgrading of those in use relevant to his SWBS scopes, 4) manage, monitor and administer the material take-off for the relevant SWBS for the equipment and system on implemented building contracts, 5) manage and monitor the conceptual and detail design drawing and documentation production progress and required technical variation for implemented building

contracts under his SWBS scopes, 6) develop, monitor and implement relevant engineering database according to the requirement of project/contract/order in compliance to specifications, guidelines, regulations and standards pertaining to his SWBS scopes, 7) establish and maintain good working rapport with leading Original Equipment Manufacturer (OEM), suppliers, and professional organizations and governmental bodies, 8) recommend staff's career development and technical professional training within his SWBS scopes, 9) provide, assist and advice technical/engineering services on relevant SWBS to operating units, 10) implement best practice and provision of quality services and 11) responsible for determining and complying with all Health and Safety policy and procedures at the workplace and ensuring all employees under the section comply with such policy, regulations and procedures.

4.2.3 Unit of Electrical & Electronics – Engineering Department

Responsible for technical and engineering of Navigation System and Communication Systems for marine/naval vessel and shall manage all activities of the projects to determine, prepare, and audit all new build specifications, procurement specifications, design documents, and materials meeting contract requirements and in compliance to specified standards, governmental/statutory bodies regulations. Perform technical support and engineering works in support of existing and new project.

The details duties and responsibilities are; 1) to manage a team of technical executives responsible for ship Navigation and Communication systems and their associated equipment for the assigned duties, tasking, and scope of works, 2) monitor, control and approve the delivery of design drawings and documents and technical material requisition (TMR) for the Navigation and Communication systems; 3) prepare and develop the new contract building specifications and technical procurement specifications of ship Navigation and Communication systems in compliance with standards, statutory rules/regulations meeting client requirements and contract specification, 4) determine and manage the design and engineering drawings and documents required for built contract and delivery of the final technical documents and drawings, 5) manage the Engineering Change Proposal (ECP), Variation Proposal (VP) and Variation Order (VO) raised until final approval, 6) ensure technical documents, references book, Classification rules/standard, military standards and governmental/statutory body regulations are updated and maintained by staffs, 7) provide technical/engineering services to operating units, 8) manage all staffs work progress and plan their career development to enhance section capability and 9) establish and maintain a good working relationship with RMN, OEM, Suppliers, and professional bodies.

4.2.4 Unit of Material – Engineering Department

Responsible for leading, manage and determine the proper and smooth function of the Material Unit and its section, i.e., Material Management, Configuration Control, and Document Management.

4.2.4.1 Material Management Section

This section is to monitor and manage the development and continuously improvise the functionality of material management which enables the section always ready and fully contribute to any project undertaken by the company such as 1) properly manage and monitor the development, correctness, collation, and acquisition of material through the material definitions and cataloging system registrations, 2) monitor and ensure proper execution of the process of classifying and identifying the grouping of material, into Project Component, Pre-Fabrication or Standard Materials in MARS system including new material required for any project, 3) ensure proper communication between the material management team with Material Controller from PMT on material delivery and handling. This shall lead to smooth material management flow and later benefit the whole Project and 4) attend the relevant meeting, discussion, and inspection related to the material.

4.2.4.2 Configuration Control Section

To monitor and manage the establishment and functionality of Configuration Control and ensure readiness to perform its duties in any project undertaken by the Company. Other functions of this section are; 1) perform Configuration Management according to set up procedure either by department or company and 2) actively involve and coordinate any Configuration Management related matters with close communication with other Project Team members.

4.2.4.3 Documentation Management Section

To monitor and manage the existing functionality of the Documentation Management Section and ensure readiness to perform its duties in any project undertaken by the company. The details function are; 1) manage all related activities of collection, receipt, archival, tracking, maintain the information, distribution, etc. and 2) to implement the best practice of Document Management compliance to its procedure and process flow setting.

4.2.5 Unit of Hull – Production Department

This unit provides technical support on the ship repair works for Hull and Accommodation Outfitting of the ship complying with the standard requirement, deliver timely and cost-effectively. The duties and responsibilities are; 1) lead and provide technical support for Hull & Accommodation Outfitting System Section

Chiefs, Executives and Non – Executive to undertake all Hull & Accommodation Outfitting System scopes for Ship repair projects, 2) oversee all Hull & Accommodation Outfitting System work Ship repair projects 3) manage all facilities allocated to the Hull & Accommodation Outfitting System workshops, maintain and safely keep all working tools in proper and documented manner, 4) support the Engineering department in preparing a scope of work and material required for upcoming Ship repair projects, 5) attend meetings and negotiation session as and when required, 5) control and administration of all Hull and Accommodation Outfitting System work orders, materials, tools and equipment, manpower requirement and training, 6) ensure all subordinates to implement standard engineering practice and optimized resources utilization while maintaining a proper record and documentation of all designated scope of work, 7) engage services and manage Sub Contractor & OEM support as required, 8) produce work procedures, work instructions, work standards, etc., to cover all important jobs undertaken in the Hull & Accommodation Outfitting System section, 9) analyze work and information flows within the Hull & Accommodation Outfitting System and ensures continual improvements are made, 10) ensure of work practice and workplace in compliance with the company's ISO & QE (Quality Environment) requirements, and 11) responsible for determining and complying with all Health and Safety policy and procedures at the workplace and ensuring all employees under the section comply with such policy, regulations, and procedures.

4.2.6 Unit of Mechanical – Production Department

This unit provides technical support on the ship repair works for Mechanical System of the ship complying with the standard requirement, deliver timely and cost-effectively. Duties and responsibilities are; 1) lead and provide technical support for Mechanical System Section Chiefs, Executives and Non – Executive to undertake all Mechanical System scopes for Ship repair projects, 2) oversee all Mechanical System work Ship repair projects, 3) manage all facilities allocated to the Mechanical Systems workshops, maintain and safely keep all working tools in proper and documented manner, 4) support the Engineering Department in preparing a scope of work and material required for upcoming Ship repair projects, 5) attend meetings and negotiation session as and when required, 6) control and administration of all Mechanical System work orders, materials, tools & equipment, manpower requirement and training, Ensure all subordinates to implement standard engineering practice and optimized resources utilization while maintaining a proper record and documentation of all designated scope of work, 7) engage services and manage Sub Contractor & OEM support as required, 8) produce work procedures, work instructions, work standards, etc., to cover all important jobs undertaken in the Mechanical Systems, 9) analyses the work and information flow within the Mechanical System and ensures continual improvements are made, 10) ensure of work practice and workplace in compliance with the company's ISO and QE requirements and 11) responsible for determining and complying with all Health and

Safety policy and procedures at the workplace and ensuring all employees under the section comply with such policy, regulations and procedures.

4.2.7 Unit of Electrical & Electronics – Production Department

This unit provides technical support on the ship repair works for Electrical and Electronics of the ship complying with the standard requirement, deliver timely and cost-effectively. Duties and responsibilities are; 1) lead and provide technical support for Electrical & Monitoring System Section Chiefs, Executives and Non – Executive to undertake all Electrical & Monitoring System scopes for ship repair projects, 2) oversee all Electrical & Monitoring System work ship repair projects, 3) manage all facilities allocated to the Electrical & Monitoring System workshops, maintain and safely keep all working tools in proper and documented manner, 4) support Engineering Department in preparing a scope of work and material required for upcoming ship repair projects, 5) attend meetings and negotiation session as and when required, 6) control & administration of all Electrical & Monitoring System work orders, materials, tools & equipment, manpower requirement and training, 7) ensure all subordinates to implement standard engineering practice and optimized resources utilization while maintaining a proper record and documentation of all designated scope of work, 8) engage services and manage Sub Contractor & OEM support as required, 9) produce work procedures, work instructions, work standards, etc., to cover all important jobs undertaken in the Electrical & Monitoring System

section, 10) analyses work and information flows within the Electrical & Monitoring System and ensure continual improvements are made, 11) ensure of work practice and workplace in compliance with the company's ISO & QE requirements and 12) responsible for determining and complying with all Health and Safety policy and procedures at the workplace and ensuring all employees under the section comply with such policy, regulations and procedures.

4.2.8 Unit of Material – Production Department

This unit provides material support on the ship repair works for Hull, Mechanical and Electrical & Electronics of the ship complying with the standard requirement, deliver timely and cost-effectively.

Duties and responsibilities are; 1) monitor the performance of the Unit according to Unit functions, 2) monitor Unit personnel competency meets the functions of Unit, 3) monitor the improvement of the Unit under supervision directly or indirectly, 4) overseer & coordinate with Material Handlers, Workshop Heads/Supervisors, Warehouse Department, Engineering Department, Planners and/or other relevant parties for updating, monitoring of material availability, material arrival & distribution of materials to workshops, 5) monitor and ensure the process of identifying & verifying the correct Material Identification Code based on the requirement TT2/TT4 into MARS System being executed, 6) verify and approve

MARS i154 – E-FMC for requisition of the new creation of Material Identification Code, 7) adhere to all requirements based on Pallet Management System, 8) coordinate and liaise with Material Handlers, Workshops & Engineering Department in relation to provide a sample and/or sufficient specification of material, 9) control and ensure all samples/data/specification of materials not to be handed over to any supplier/s without prior consultation with the Head of Workshop, 10) manage the material expediting exercise with the Procurement Department to ensure timely material availability with required quantity, 11) ensure the presence of Material Coordinator and/or Material Handler in the inspection of materials as and when required, 12) ensure the execution of DRL issuance for submission of the material requirement under TT2 based on Pallet Management Systems, 13) attend (and to arrange if necessary) meetings and discussions with regards material requirement, 14) monitor the material movement via MARS System, 15) coordinate and submit weekly & monthly material report (if any), 16) identify appropriate training for Unit personnel in order to improve competency gap and increase the knowledge and skills, 17) review and propose improvements in work procedures and instructions (if necessary) to supervising personnel, 18) comply with work procedures and instructions of Department, in line with the requirements of ISO 9001, 19) other requirements (as and when required) by a superior and 20) determining and complying with all Health and Safety policy and procedures at the workplace and

ensuring all employees under the section comply with such policy, regulations and procedures.

4.3 Research Work Process

Data collection is required before any analysis can be implemented. The data that used to perform the analysis is composed of primary data and secondary data. Primary data was obtained through interviews conducted at the two departments involved in this research, Engineering Department and Production Department.

Secondary data is obtained through review and observation documents when carrying out ship repair works. The review document has many references such as audit reports, reports by consultants, BOI ship reports, climate survey reports, ship's progress work reports, Board of Directors reports and company annual reports.

4.3.1 Working with Data Files

Any information obtained has been classified according to classified equation information, where the same information must be stored in the "node" provided. For this study, all the information collected is obtained through interviews, observation and document review resources.

Each source is used in accordance with the prescribed method as described in chapter three (methodology). All information related methods are arranged according to the requirements of this research.

An essential consideration in the process of classifying information is to collect and collate all the information obtained according to a predetermined source. The complete list of each source and process classification used in the Nvivo 11 application is as follows:

4.3.2 Working with Nodes

For each available node, researchers can easily access all the information. The researcher can also review any encoded information on the findings of each category or classification that has been provided. Every information that has been analyzed is provided according to research questions for this study.

The node also helps in the analysis by exploring all the essential data and information contained in the listed nodes. In addition, all selected information stored can be modified according to the needs of the researcher. With regards to additional information, the researcher can also create new information codes for each category.

Node classification is required because the information recorded is sometimes used as a guide to analysis, as an example the provision of summary information for statistical diagrams.

4.3.3 Coding of Recorded Data

The process of classification and encoding information is also performed using this Nvivo 11 application. The classification process is used to collect and listen to all the available information of the equation in which each source is associated with research topics and decisions.

The encoding process provides information and provides an insight into the same information which has been in the code by the provided node. This situation facilitates the work of researchers to carry out the process of checking information. In addition, some of the information in the code can be associated with other sources of information. Hence, by identifying information equations, researchers can apply and use the same work processes for all existing resources and nodes.

4.3.4 Analysis Option

At this stage, researchers can analyze the information efficiently after all the above processes are performed. When all the information from all sources is available in the Nvivo app, researchers are able to thoroughly review all the information and be able to do an excellent analysis to produce the best and comprehensive research.

4.4 Profiles of Respondents

The background of each respondent was obtained during the interview process to enable the researcher to know at least one of the respondents involved. Knowledge of the respondents' background will help researchers understand the respondents to get the best answer from them.

Interview sessions were performed and analyzed using the methods discussed in the previous chapter. The interview was started in March 2018 which started with the Engineering Department staff and followed by the Production Department. The interview session from the Engineering Department involves a total of 11 respondents from the relevant workers of 21. The interview session from the Production Department involves 4 respondents from the entire employee 135.

The total number of respondents involved from both departments is 15 out of 156 respondents of around 10%. Those who cannot participate involved mainly with ship repair tasks such as meetings, surveying on ships, developing ship scope of work, preparing production drawing, overseeing sub-contractor workers and engaged in ship repair work itself.

The interview result reveals some vital information regarding the strengths and weaknesses of each participant either from the Engineering Department or Production Department. Respondents consist of workers who come from units

involved with ship repairs and are directly involved in the implementation of PFD. Respondents from the Engineering department involved in this investigation are as shown in Table 4.1.

Table 4.1
The Respondents From Engineering Department

Section	No of respondents	Total staff in the Engineering Department
Hull	3	6
Mechanical	4	5
Electrical and electronic	3	5
Material	1	5

Source: Data from the Engineering Department.

Table 4.2 showed the respondents from the Production department that participate in this study.

Table 4.2
The Respondents From Production Department

Section	No of respondents	Total staff in the Production Department
Hull	1	35
Mechanical	1	55
Electrical and electronic	1	34
Material	1	11

Source: Data from Production Department.

Information obtained from interview sessions has been compiled into Nvivo 11 Application in audio and transcript form. The information has been classified and structured according to age, education background, work experience, and work expertise as follows:

Table 4.3
The Profile of Respondents

Category	Description	Total
Age	20 – 29 years	3
	30 – 39 years	5
	40 – 49 years	7
	> 50 years	0
Educational background	Certificate	0
	Diploma	7
	Degree	8
Work experience	< 1 year	0
	2 – 5 years	4
	6 – 10 years	2
	11 – 15 years	1
	16 – 20 years	3
	> 20 tears	5
Work expertise	Hull	4
	Mechanical	5
	Electrical & electronics	4
	Material	2

Source: Data from the Engineering Department and Production Department.

4.4.1 Age of Respondents

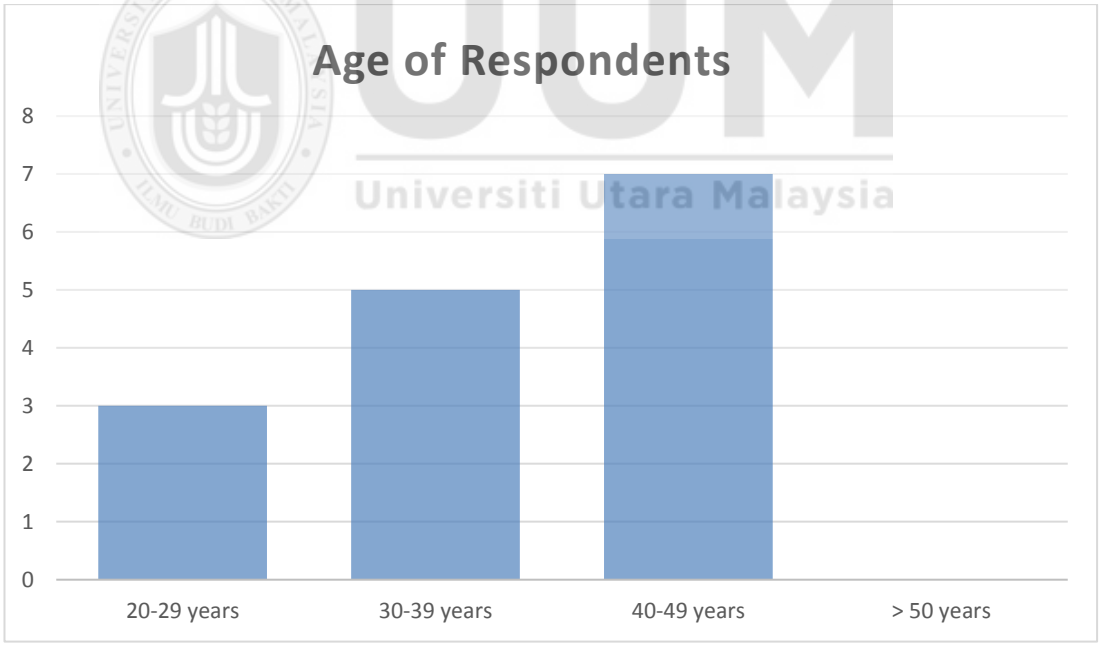

Figure 4.1
Age of Respondents
Source: Data from Human Capital Management

During the interview, all 15 respondents have provided excellent cooperation and have also responded well. Referring to Figure 4.1, respondents aged 20 - 29 years old is 3 persons representing 20%, respondents aged 30 - 39 years old are 5 persons representing 33% and respondents aged 40 - 49 years old are 7 representing 47%. There is no respondent aged 50 and above involved in this interview. Based on the respondent's feedback, even though they admit that the conflict happens but it's more on the task conflict and not individual conflict. They also mentioned that the conflict is managing to handle once they meet a mid-point to the problem faced.

4.4.2 Educational Background

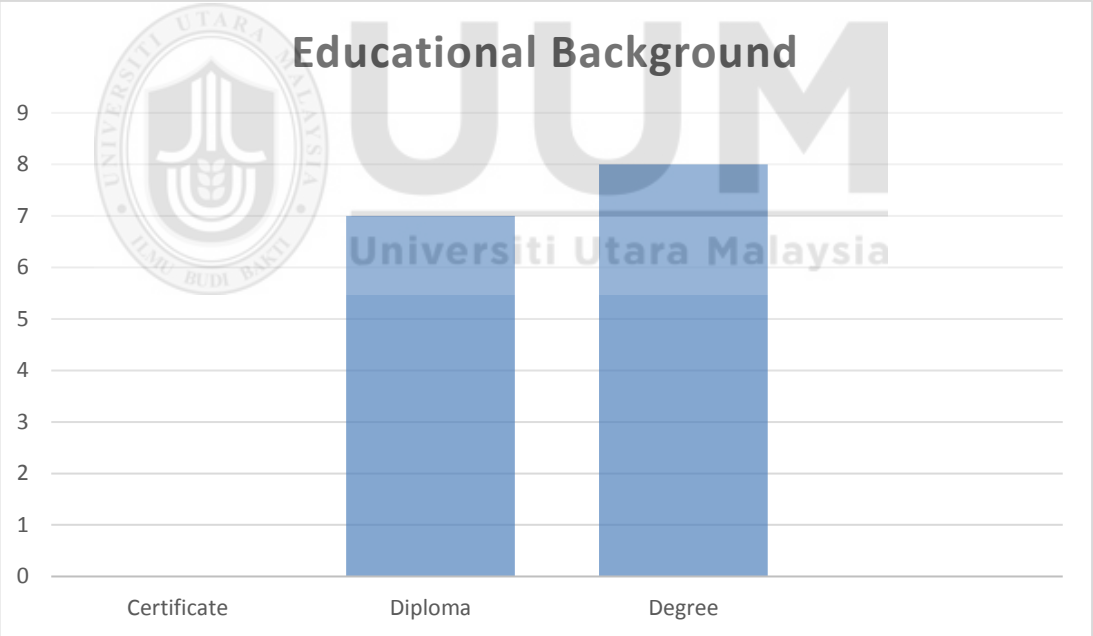

Figure 4.2
Educational Background of Respondents
Source: Data from Human Capital Management

Figure 4.2 shows that respondents have different levels of engineering qualification in various fields. Most respondents are degree holder which are 8 respondents representing 53%. Diploma holder is 7 participants representing 47% and none of them is a certificate holder. It can be concluded that educational background plays an important role in producing value-for-money products. Good level of education also encourages quality work. In addition, with a high level of education, the staffs more easily understand the wishes of all parties about the importance of achieving the completion of work within the stipulated time or preparatory work early.

4.4.3 Work Experience

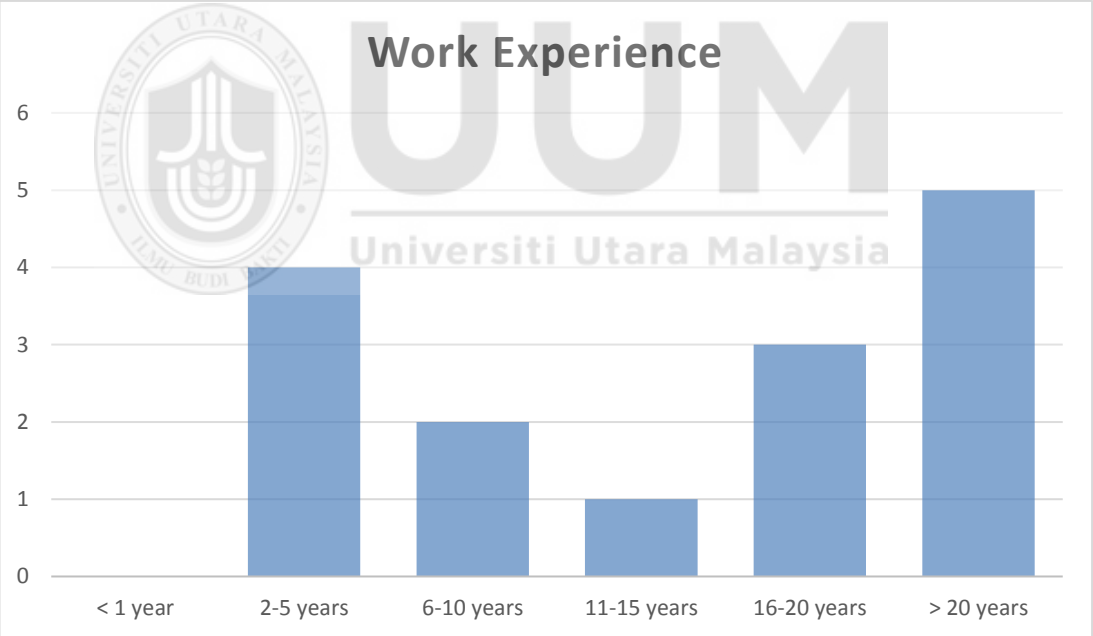

Figure 4.3
Work Experience of Respondents
Source: Data from Human Capital Management

Referring to Figure 4.3 shows the number of years of work experience among respondents. In general, work experience is a key contributor to the success of an organization as it helps the work process to become more robust and efficient. Based on the above statistics, there are none of the respondents working experience of less than 1 year. Working experience of 2 – 5 years is 4 representing 27%, 6 – 10 year is 2 representing 13%, 11 – 15 years is 1 representing 7%, 16 – 20 years 3 representing 20% and more than 20 years 5 representing 33%.

Based on the results of this analysis, it was found that more than 50% of the respondents had working experience for more than 10 years. This scenario provides information that most of the respondents had plentiful experience in the field of ship repair. This is shown in the quality of the execution of ship repair work activities it can be said to be at a good level.

4.4.4 Work Expertise

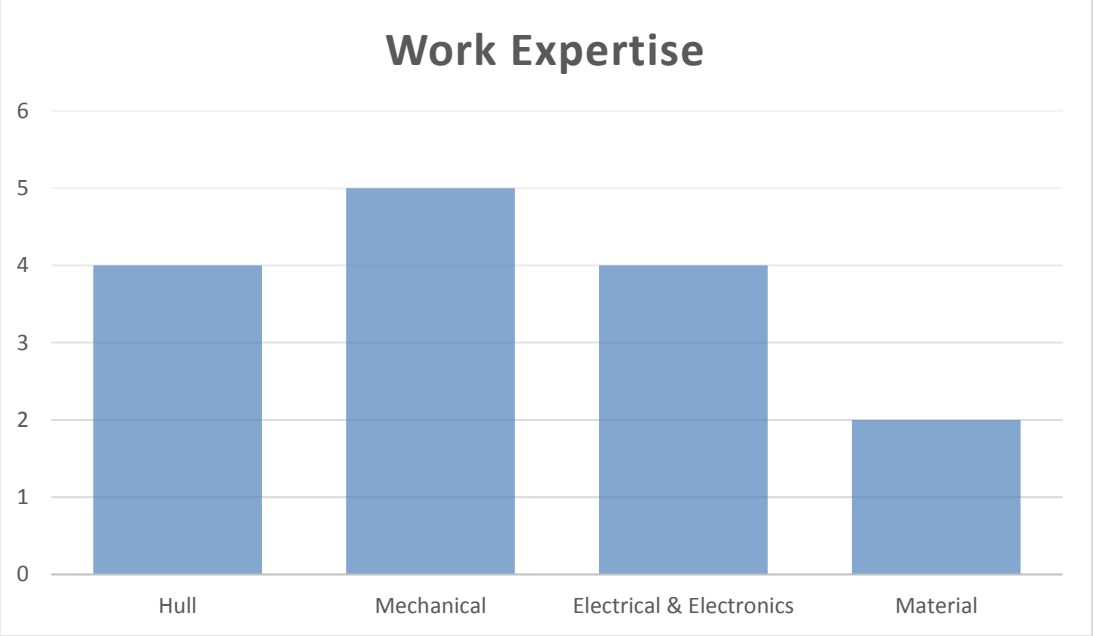

Figure 4.4
Work Expertise of Respondents
Source: Data from Human Capital Management

In accordance with Figure 4.4, the respondents are divided into four main disciplines which are Hull Engineering, Mechanical Engineering, Electrical & Electronics Engineering, and Material. The Hull Engineering respondents are 4 representing 27%, Mechanical 5 representing 33%, E&E 4 representing 27% and Material 2 representing 13%. All of them are the Head of Unit and very experienced staff in their discipline.

4.4.5 Consultant View

This research activity was carried out during the period of transformation program in the shipyard. The consultant from South Korea was engaged to assist the transformation program by the management. The researcher took this opportunity to seek view and advice from the said consultant as a cross-reference from the data collected.

4.5 Finding of Research and Analysis

During the research, there were some findings which originated from three (3) sources, i.e., document review, observation, and interview. The list of the finding is shown in Table 4.4 below:

Table 4.4
The List of Finding

Document review	Research observation	Interview session
• Document incomplete • Document missing • No record on configuration changes • Poor maintenance records • Poor Naval Engineering practices • Lack of teamwork-silo working cultures • Absence of project risk management plan • Lack of material definition and selection • Lack of supervision of sub-contractors	• Works were done not using production drawing • Using pictures, sketch and experience as a reference • Poor communication • Incapable Subcon in reading drawing • Difficulty of finding data for PFD • Incomplete specification in the survey report • No data required in BR • Difficult to identify specification onboard due to wear and tear	• Absent of production engineering • Weaknesses of work together • No training to foremen • Lack of material specification • Lack of equipment specification • Loss of equipment's manual • Late delivery of the ship • Rework issue • Cost increase • Incompetence of production staffs • Incompetence of subcontractors

• Inadequate records on refit works • Poor of quality and timely output • Poor communications • Insufficient knowledge and skill in data analysis • Poor database management • Lack of skilled personnel • Over-dependent on vendors • Poor in design and production drawing capabilities	• Workshop work is done onboard • Subcon using the traditional facility	• As per original equipment • Task conflict • Incomplete specification • As per sample • Using sketch as a guide • Data not in Book of Reference (BR) • Limitation of Material Handler (MH) • Unfriendly survey report • Unknown to spares priority • Conflict of reluctance accepting new task/culture

Source: Author

This chapter discusses the findings and analysis of the study in two (2) areas:

1. To address RQ1: What are the possible causes that contributed to the conflict between the Production department and Engineering department? The researcher proposed that; individual differences, organizational factors and behavioral factors at section 4.5.1, 4.5.2 and 4.5.3 are the areas of causes factors of conflict that exist between Production department and Engineering department, in the Shipyard.

2. To address RQ2: In what way can the relationship between the Production Department and Engineering Department be enhanced or improved to address the conflict?

This subject contains themes such as poor communication, poor cooperation and individual differences. Individual differences divided into sub-themes such as the age gap between employees and differences in educational level.

4.5.1 Poor Communication

The findings on lack of communication, related to the conflict between the Production and Engineering departments could be read as stated below. The results were based on the answers of the study participants to the question: Does poor communication between the Production and the Engineering departments contributed to the conflict?

> *"I would say in the earlier stage of Engineering involvement in ship repair, the communication between us and Production is very poor. Information of engineering specification is very important to produce friendly production drawing. But to get comprehensive information from Production is very difficult especially if we involve in repairing the old ship."*
>
> *Interviewee #1*

> *"Communication weaknesses have indeed occurred causing technical proposals and engineering drawings to be discontinued and forced to be amended."*
>
> *Interviewee #2*

> *"Most of the problems we faced because there is a lack of communication. Because of this there is not enough information. If you want to make a friendly drawing there must be enough information. If you don't then the drawing is not so friendly."*
>
> *Interviewee #4*

"Communication weaknesses occurred not only between Production and Engineering but also with the subcontractor. Sometime when we discuss how to execute works seems they are understood. But when we check on the ground, they are subcontractor's workers who don't even know how to read drawings. So, we have to teach them slowly. But we must remember that all subcontractors are under Production charge."

Interviewee #5

"Before the transformation program and at the beginning of transformation program, most of the staffs like to work in a silo and less communication. They don't share the problems openly especially with other departments. So, of course they will not get all the information they want because the information will be coming from many parties/departments."

Interviewee #13

"Before Korean Consultant makes the Engineering involved in ship repair, we had no communication and connection, but after Engineering was involved in ship repair, we always referred to them especially when we received a Survey Report. So, we have a bit of release after Engineering was involved in this ship repair. We can see in the initial stage was a conflict because Engineering was wondering why they had to involve in ship repair because they are only involved in shipbuilding before. It's like a new thing to do. But Korea continues to emphasize Engineering Leads for the provision of SOW, specification and production drawing."

Interviewee #15

Communication is important to keep people updated about the status of the change. Make employees aware of how the change will impact them, for good or for bad (Calder, 2013). In the Shipyard's Risk Report 2014, shipyard experienced that information exchange on verbal communication, inaccurate and incomplete making the process very informal and as a consequence it's difficult to make decisions to correct deviations in the planned schedule. In the Group Strategy Retreat, indifferent

attitude towards teamwork that created silo working cultures and resulted in no positive teamwork within the organization in the Engineering department was suggested as one of the future challenges.

4.5.2 Poor Cooperation

The findings on poor cooperation related to the conflict between the Production and Engineering departments could be read as stated below. The results were based on the answers of the study participants to the question: Does poor cooperation between the Production and the Engineering department contributed to the conflict?

> *"Actually, we lack cooperation and communication between these two departments. We must have to give and take attitude. Production staffs have more experience but lest knowledge of theory whilst Engineering staffs have more theory but less experience. So, if they can compromise then they can complement each other."*
>
> *Interviewee #13*

> *"At Location 8, in August 2015, KD PAHANG just to starts, KD JEBAT just starts in 2 to 3 months. If we check the KD LEKIU report all spares requirement are "as per sample", no specification. Why this thing happened, because at that time there is no collaboration and cooperation with Engineering. Everything is controlled by the workshop. When there are an initiative and directive from management to reduce or avoid using as per sample then for KD PAHANG we are quickly transforming. If it is possible, we don't want as per sample. If there is a specification, we will enter the specification and if there is ident code, we use the ident code. Worst case, we will provide pictures, to avoid as per sample."*
>
> *Interviewee #14*

"Conflicts occur because of the early stages of Engineering that are kind of reluctant and do not cooperate to take this task. Because Engineering does not seem to understand the whole idea that what we want to do in which Korean consultant considers Engineering as an expert in providing data and production requirements. The consultant also wants production concentrates on practical workshops and vessels while providing data and documents will be done by Engineering."

Interviewee #15

In the Group Strategy Retreat, one of the current scenarios highlighted in the Engineering department was inadequate integration of project management & planning elements. The retreat suggested that focus shall be made on the cooperation & networking across different departments. In the same retreat, the KPI was established to conduct a team building program to establish the esprit de corps and motivate towards achieving excellent performances.

4.5.3 Individual Differences

During the interview several staff members have raised concerns about the causes of conflict that lead to individual differences. The main elements of individual differences highlighted by most of the interviewees were the difference in age and education level. There were also other elements like working experience, attitude and so on but it was highlighted not in a serious manner.

4.5.3.1 Difference of Age

The findings on the age gap related to the conflict between the Production and Engineering departments could be read as stated below. The results were based on the answers of the study participants to the question: Does the difference in age between the Production and the Engineering department workers contributed to the conflict?

> *"At initial state of our involvement in ship repair we as production drawing provider experience our counterpart at Production refused to use the drawing issued to them. They used their experience to do the job. Many of Production staff are older than us from Engineering. We feel that they assumed our young engineers still new and need more experience to do work."*
>
> *Interviewee #1*

> *"Most of us from the Engineering department is young as compared with staffs in Production. It is quite difficult to convince them to accept the proposal or drawing produced by us. They used to question our proposal and drawing. But in certain cases, they are right when we visit actual work onboard ship."*
>
> *Interviewee #3*

> *"I can't deny that age has an impact. Because many of the mechanical staff in Production are already senior. Our engineers mostly still young. So, that trust is not easy to get from Production. In this score often conflict happened, and a lot of argument were faced by our young engineers."*
>
> *Interviewee #4*

> *"Difference age has of course an impact on the level of conflict. Most Engineering Department staff are young compared to the Department of Production staff. Therefore, the Department of the Production staff is often sceptical of the PFD produced by the Department of Engineering staff. They*

see that the Department of Engineering staff is still a lot lacking in the experience aspect."

Interviewee #5

"Yes. I experienced when production refused to follow piping drawing that we issue to them. Work is done using their experience. In this case we have to do reverse engineering to redraw based on their work. At that time, I feel that this is because I am young as compared to them."

Interviewee #6

"Yes. Most of us from Engineering are young. At first, they received the drawing just to fulfil the requirement and did not follow the drawing upon the project. They implement their experience into the project without considering the drawing given by the Engineering department."

Interviewee #7

"At the initial stage when Engineering is directed to involve in ship repair activities, we can see the conflict ... Engineering has many young engineers. On the other hand, Production has many old and experienced staff of ex-navy. So, it's not easy for young engineers to advice the experienced staff in Production."

Interviewee #8

"Generally, engineers from Engineering are young and some of them just graduated from university... and most of the staff from Production are old. Most of them are x-navy. Conflicts occur when production staff feels that they are more experienced."

Interviewee #12

"From my observation…yes, age becomes one of the factors of the conflict. As I explained before, the conflict happened when majority Production staffs feel that they are older than the Engineering staffs both in term of age and service in the shipyard."

Interviewee #13

"I can see that age contributed to the conflict. Because old people have a lot of experience. If the young do not know how to respect the old man, it's a problem. Like staff from Engineering is mostly young people. Production staff most of them are senior in age."

Interviewee #15

It was observed that the young engineers from Engineering were often complaining that the drawing and proposal issued to Production have not been used. According to these young engineers the Production staffs were observed reluctance to utilize the documents when they perform their works. It can be read from Table 4.4, the list of observations finding.

4.5.3.2 Education Level

The findings on education level related to the conflict between the Production and Engineering departments could be read as stated below. The results were based on the answers of the study participants to the question: Does the difference in education level between the Production and the Engineering department workers contributed to the conflict?

"Generally, non-executive in Production like to do works based on their experience or traditional way like sketch or as per sample. Our engineers are trying hard to provide proper production drawing and teach them how to read a drawing. Initially they were reluctant to use drawing that we are provided. This situation creates conflict."

Interviewee #1

"When we were in universities, we were trained to use drawing when doing our works. So, most of us now are in Engineering. But people in Production

used to carry out their works by using sketch, picture, sample. This practice has been there for years. That's why the conflict can't be avoided when we are trying to introduce proper drawing in the initial stage."

Interviewee #2

"There is of course an impact on the level of education. Because engineers always implement good engineering practice based on drawing when doing work. But non-executive in Production has been adapted to work based on experience and using pictures, samples and sketches."

Interviewee #4

"Education level has an impact on the level of conflict because both departments look at things differently. The Production department is looking at the experience while the Engineering department looks at theoretical aspects professionally."

Interviewee #5

"I think so. Since I am trained to do an engineering job by using drawing, I must practice it. But what I observed, Production staff they do not conversant with the drawing. They like to do the job by the old way like a sketch, as per sample and pictures. I observed also most of them are ex-navy from rank and file during the service."

Interviewee #6

"Conflict happens when Production Team does not follow 100% drawing that has been passed to them. In addition, if the Engineering Team gives a new drawing, the Production Team failed to follow the new one and still follow the old drawing."

Interviewee #9

"Yes, education level sometimes can cause conflict. Because the thinking, way of doing a job is different. The engineers from Engineering especially they are doing work by knowledge and book. They are conversant with the drawings. But Production staff most of them non-graduate and they are working based on experience, sketch, photo and as per sample."

Interviewee #11

"Educational level is also having an impact on the conflict between two departments. Engineering staffs, even though they are young but have a higher educational level than Production staffs. Most of them are a degree holder."

Interviewee #13

The engineers from the Engineering department were also reported that many of the non-executive staff in the Production department were not able to read the drawings issued by the Engineering department. It can be observed from Table 4.4; using pictures, sketch and experience as a reference, an incapable subcontractor in reading drawing and subcontractor using the traditional facility. This situation was confirmed by the manager of the Production department as stated below:

"Normally, when we received drawing, when it comes to getting something that we ask for, it is no problem. Problems arise when we want to fabricate something, for example, we make mounting for the equipment and it is to be in the form of an estimate. Engineering will be issued for many pieces. For example, a flat bar, how much size do we have to cut? If we can draw for the complete, for that fit-up that is a bit of a problem. This is a problem among non-executives. So sometimes we need Engineering to explain."

Interviewee #12

4.5.4 Summary of Problems

The conflict happened due to various causes. Poor communication, poor cooperation, age factor, and education level were identified as the factors that contribute to the conflicts. The finding from the interview indicated that the causes of the conflict involved many factors. Among others, poor communication and poor collaboration

were the common causes contributing to the conflict. Other than that, demography factors were also contributing to the conflict such as age and education level.

4.5.5 Strategy to Resolve Conflict

The findings on how to resolve conflict related to the conflict between the Production and Engineering departments could be read as stated below. The results were based on the answers of the study participants to the question: In what way can the relationship between the Production Department and the Engineering Department be enhanced or improved to address the conflict?

> *"Yes, I believe that PFD can resolve the conflict. It helps to smoothen the progression. For example, we have a diagram drawing and school drawing. Each of them has stated all functions of the material and also fitting. So, when the workshop team withdraws the material, they can follow exactly as per plan and can install to the ship excellently."*
>
> *Interviewee #1*

> *"Agreed, PDF did simplify ship repair work as a whole and reduced the conflict. This is because PDFs provide information for Material Take-Off (MTO) to be done. PDF also, can be used as a guide for workshops and complete guide on ship installation work."*
>
> *Interviewee #2*

> *"PFD introduced by Korea is very useful. Because the PFD is complete with information relating to spare parts / materials and detailed working methods whether in workshops or in ships. It helps to solve the problem between the Production and Engineering department."*
>
> *Interviewee #5*

"Since Korea introducing PFD many disputes between the Production and Engineering departments can be overcome. The reason for all the information is clear. But to provide a PFD need to get a lot of information."

Interviewee #6

"It is undeniable in respect of the benefits of this Production-Friendly Drawing. It reduces the problem with Production."

Interviewee #7

"Yes, it helps to resolve the conflict. Actually, it starts with the preparation of the scope of work in the early stage. During this period, all requirement of ship repair needs to be obtained such as specifications and drawings."

Interviewee #8

"When I was involved with the restoration project of KD PERANTAU, PFD did help in accelerating the repair of the ship."

Interviewee #9

"In term of performance, PFD really helps to accelerate the work process, improve the quality of works and minimize the project cost. This can be seen when the PFD method is implemented in LEKIR ship project. It is normal to have some challenges. But we need appropriate planning or choose the best one as reference."

Interviewee #10

"Yes agreed, provided they follow exactly what has drawn and written in the drawing."

Interviewee #11

"Nowadays PFD provides a lot of contributions. All the projects delivered on time and fast from the schedule. When the PFD is ready, it provides a complete list of detailed fabrication, fabrication and detailed installation before the vessel enters the shipyard. This ensures all the processes will be executed on schedule or earlier. That is why ships repair after KD KASTURI

which starts from KD LEKIR can be completed either on schedule or earlier."

Interviewee #12

"Yes. Generally, ship repair works are improved when the Engineering Department give their support to lead the process, start from developing SoW and prepare the material list. All these criteria are translated into PFD."
"The PFD helps a lot even when we face situations when we have issues that we cannot fix, we will refer to Engineering. The point is that when we have problems, Engineering will come and help even sometimes we don't have the drawing to refer to. The involvement of Engineering is not limited. This situation is very healthy where Production focus on ship, focus on the product. Knowledge or any advice we will take from outside especially from Engineering. The heart of our technical work here in Production requires drawing to do work because of its practice. Korea has taught us a PFD that is very helpful because obviously Production has a job, and every problem, knowledge and advice we get it from outside. The change is not small. Significant!"

Interviewee #14

"There is an improvement. This is beneficial in terms of speeding up completion of work, saving costs and improving work quality. An example of Warehouse (WH) can cost savings because it has two stores in one main store under WH and another sub-store under Production. So, what's in store we do not have to buy and it's saving too."

Interviewee #15

The Shipyard Transformation Progress Meeting reported that, examples of building capabilities in this program is the development of Production Planning, Ban Working Group, Production Engineering in Design and subcontractors. By building capabilities, we have also improved on team dynamics where subcontractors and Engineering department work together to develop production-friendly drawings. Another example of team dynamic is when engineering collaborates with company

X to install and fabricate pipes based on drawings which were not successful at the first attempt in June 2015. However, today we are pleased to report that company X has successfully fabricated pipes by drawings for KD LEKIU refit project (Boustead Naval Shipyard, 2015b).

4.5.5.1 Assessment of PFD

Initially the researcher does not know what the best way is to resolve and manage the conflict. The researcher focuses on reading and interviewed key personals of the Engineering and Production staffs. The findings were not satisfying until the researcher interviewed Mr. Suh, the consultant from South Korea. When the researcher asked him about what the best way is to resolve a conflict that exists between the Production and Engineering departments, the answer was:

> *"As an engineer why don't you used engineering element as your tool to manage the conflict? You have tried so many ways to resolve the conflict before but the result still the same. Do you observe that after we introduced PFD you can see the difference? Do you realize when we start introducing PFD on board KD LEKIR and she managed to be completed on time? After that followed by KD PERANTAU, KD PAHANG and KD LEKIU. Then why don't you used PFD as the element of engineering to resolve and manage the conflict?"*
>
> *Interviewee #16*

The answer from the Korean consultant was then supported by all the interviewees when all of them concurred that the PFD was helping them reduced conflict between these two departments.

4.5.6 Summary of the Problem

Interview analysis that has been done in relation to PFD manually needs to be understood to associate it with Qualitative Application such as Nvivo11. Understanding how manual analysis works helps to explain our work, to systematically prove how the analysis using Nvivo11 is implemented (Tobi, 2016). The finding from the interview indicated that several steps were taken after the RMN begin the ship repair through TMP. The shipyard with immediate effect has to comply with the RMN's requirement. With the transformation program going on in the shipyard and Korean consultant was around the effective advice has been discussed. Korean best practice suggested that friendly information in term of design and the material list could be very significant to solve the ship repair works as well as conflict. Eventually, the friendly information was translated to PFD as a practical solution to address the conflict. The following interviews have supported the statement.

> *"The PFD helps a lot even when we face situations when we have issues that we cannot fix, we will refer to Engineering. The point is that when we have problems, Engineering will come and help even sometimes we don't have the drawing to refer to. The involvement of Engineering is not limited. This situation is very healthy where Production focus on ship, focus on the product. Knowledge or any advice we will take from outside especially from Engineering. The heart of our technical work here in Production requires drawing to do work because of its practice. Korea has taught us a PFD that is very helpful because obviously Production has a job, and every problem, knowledge and advice we get it from outside. The change is not small. Significant!"*
>
> *Interviewee #14*

"There is an improvement. This is beneficial in terms of expediting the process of completion of work, saving costs and improving work quality. An example of Warehouse (WH) can cost savings because it has two stores in one main store under WH and another sub-store under Production. So, what's in store we do not have to buy and it's saving too."

Interviewee #15

4.5.7 Assessment of the Practice on Theory of Conflict

As discussed in chapter two, Elmaghri had divided the theory of conflict into three which are Traditional Theory of Conflict, Human Relations theory of Conflict and Modern Theory of Conflict. At the current state, when the shipyard was made a decision to downsize the strength of the company it faced a serious conflict. The shipyard was enforcing a Mutual Separation Scheme (MSS) to the selected staffs. Personnel who observed non-productive to the company offered the MSS. This was suit to the criteria of the Traditional Theory of Conflict where non-productive staff as a troublemaker.

When the TMP was starting to begin, the management realized that the conflict was unavoidable and the conflict between the Engineering Department and the Production Department happened. However, the management continues to face the conflict taking consideration of this was a necessity for the purpose of development and innovation to the company. In this aspect, the management is practicing Modern Theory of Conflict.

4.5.8 Assessment of Kurt Lewin 3-Steps Model of Change

Findings that are collected involves time, cost, quality and flexibility of ship repair work in the shipyard. Finding describes the state of the current state (before the implementation of the PFD) and the desired state (after the implementation of the PFD). Data is obtained through the cooperation of the Ship Repair Department and the Finance Department. Comparisons are made involving the same scope of work for repair work before and after the implementation of the PFD.

4.5.9 Conflict at Current State

The conflict between Engineering and Production in the Shipyard exists since a long time ago. The impact of conflict resulting in large problems in the shipyard. Unaddressed or ineffective actions against the conflicts caused conflict became contagious. Contagious conflict creates poor communication hence create a situation of wasted time and poor cooperation. Eventually, all these lead to the poor performance of the production.

4.5.10 Conflict at Desired State

The embarkation of the transformation program in the shipyard with the guide of the Korean consultant provide a very significant impact. The application of the 3-Steps Model of Change and introduction of PFD were assisted in improving the process of ship repair works.

4.6 Organization Performance

At the desired state of the conflicts eventually resulting in the positive performance of the shipyard in term of production and material progress. As an example, the performance of production in ship repair work improved after the implementation of KBP mainly in enforcing the utilization of PFD as shown in Figure 4.5.

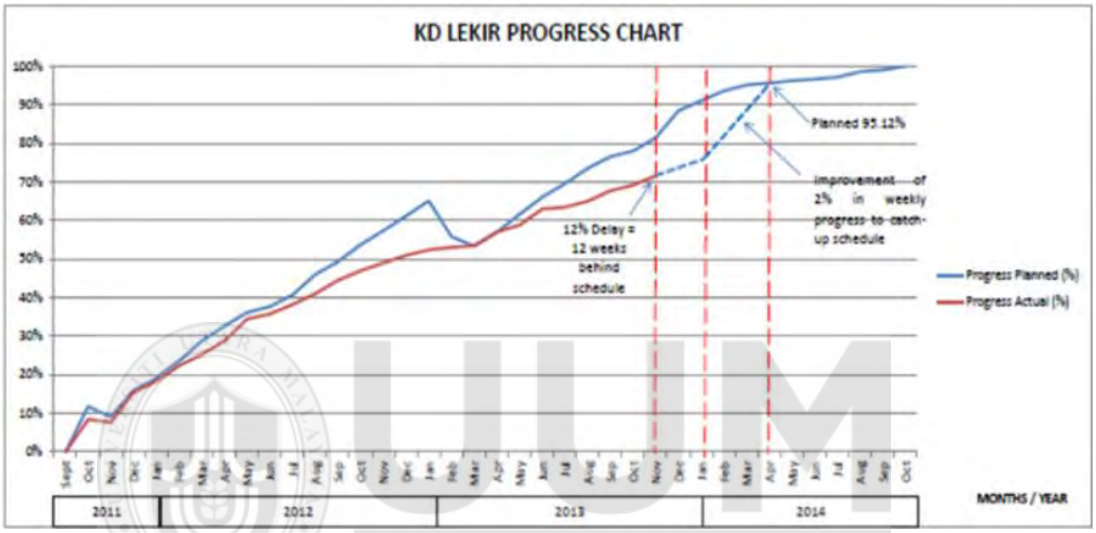

Figure 4.5
KD LEKIR Production Progress as at 1 November 2013
Source: Extract from (Yushak, 2017)

As discussed in the previous chapter, PFD was a benefit to the improvement of the process of work not only for the production design but also for material preparation. After the involvement of the Engineering as the leader of the ship repair process, the improvement of the material definition was as Figure 4.6

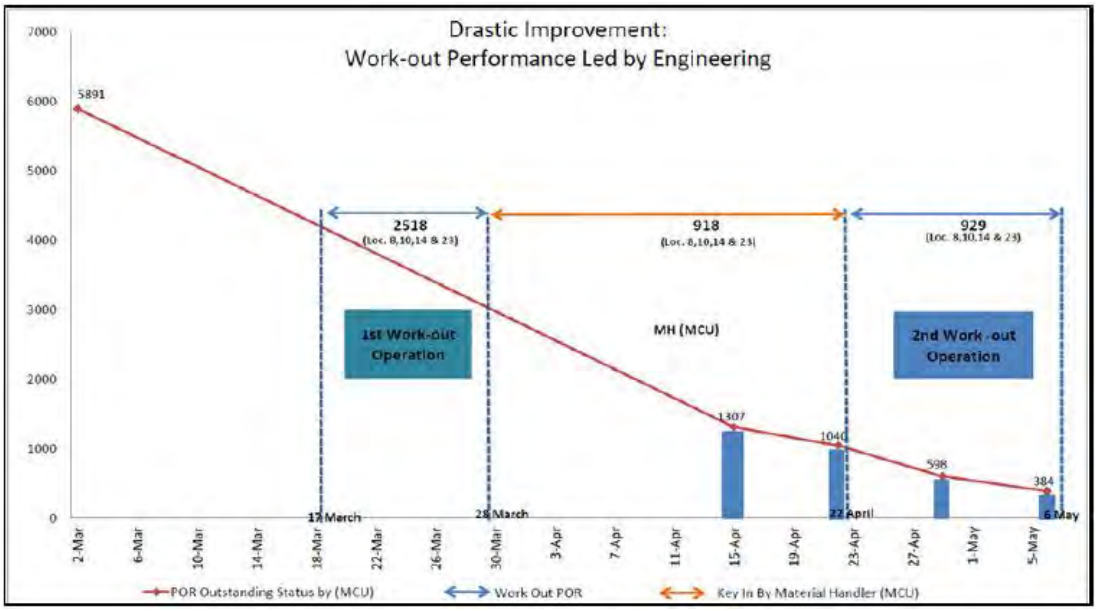

Figure 4.6
Performance Graph for Material Definition Process
Source: Extract from (Yushak, 2017)

After the implementation of PFD, the duration taken for the ship repair was as Table 4.5.

Table 4.5
Performance of Ship Repair

Project	**Start Date**	**End Date**
KD LEKIR	16 November 2013	30 October 2014
KD PERANTAU	18 November 2014	30 August 2016
KD LEKIU	8 June 2015	8 August 2016
KD PAHANG	7 September 2015	7 September 2016

Source: Extract from (Yushak, 2017)

4.7 Summary

In summary, this chapter discusses in detail about the processes and procedures that were carried out on the collective raw records data in the form of gathering information from the preceding process through interview sessions, document review and research observations. The raw data was then converted into transcripts to serve as inputs to a Qualitative Data Analysis application software system called the Nvivo11; a useful data analysis tool for studies and researches. The functionality of Nvivo11 was also highlighted in this chapter in a step by step manner.

The results and findings from this research indicate that the causes of conflict were poor communication, poor cooperation and individual differences. The individual differences consist of the age factor and education level factor. The relationship between the Engineering department and Production department was enhanced by introducing PFD. The utilization of PFD improved communication, exploring better cooperation and closed the gap of age and education level. A detailed discussion and recommendation to tackle these issues are addressed in the next chapter, chapter 5 in which suggestions for improvements in certain areas are also included.

CHAPTER FIVE
DISCUSSION AND CONCLUSION

5.0 Overview

Section 5.1 is explained about the introduction of discussion and conclusion, section 5.2 is about the overview of the study, section 5.3 is about the discussions, section 5.4 is about the summary of research objectives and other findings, section 5.5 is about the contribution of research, section 5.6 is about recommendations and future research and section 5.7 on the conclusion of the chapter.

5.1 Introduction

This chapter presents further discussions, recommendations, suggestions, and conclusions. Recommendations and suggestions on an action plan to be considered for execution to improve work processes in this study are intended to achieve the overall objective of this research.

5.2 Overview of the Study

This research was carried out when top management often raised about ship delay being completed during maintenance routine in the shipyard. Various methods are carried out to identify the factors that cause this delay. Among the methods is inviting a consultant company to carry out the study and analysis to identify the

causes of the delayed problem. Among the invited company's consultants are ABS, Genexis and the latest Korean consultant.

When the RMN started implementing the TMP for the new approach of ship's maintenance routine, the Production Department was in a state of not fully ready to undertake the responsibility due to lack of competent staff to provide proper SoW and material list. Therefore, the Production Department recommends that the Engineering Department be involved in the ship repair. Since before this, the function and responsibility of the Engineering Department were for shipbuilding, Engineering Department did not agree to be involved with ship repair works. The conflict occurred then between the Engineering Department and the Production Department regarding the Engineering Department's involvement in ship repair works.

Since the shipyard was currently undergoing a transformation program, the highest management of shipyard with the advice of the Korean Consultant agreed for the Engineering Department to involve in ship repair works. Conflict continues to be at a high level when the Korean Consultant urges Engineering not only to engage in ship repair work but even Lead in the process of implementing TMP. Eventually, official directives through a memo issued by the highest management for Engineering to be involved in ship repair works.

The study is to explore and understand the conflicts that happened between Engineering Department and Production Department in terms of the possible causes are contributed to the conflict since the conflict must be addressed immediately after it was detected. It is very important so that the conflict could be managed. Finally, the appropriate solutions have to be identified to enhance and improve the relationship between the Production Department and the Engineering Department to address the conflict.

5.3 The Possible Causes of IGC

As mentioned in chapter 1, this research aims to answer two research questions that are; 1) What are the possible causes that contributed to the conflict between the Production Department and Engineering Department?, and 2) In what way can the relationship between Production Department and Engineering Department be enhanced or improved to address the conflict? The following sections discussed the findings for each of the research questions. The embarkation and investment of the transformation program were contributing a lot of benefit to the improvement of the Shipyard. There was observed that the interview sample from the Engineering department was more than the Production department. This situation happened due to the difficulty of engaging with the Production staffs. The working environment in Production required more physical involvement at the field or onboard ship. However, there are no rules or rigid guidelines for sample size in qualitative inquiry

(Daymon & Holloway, 2011; Marshall et al., 2013). Sample size depends on what you want to know, the purpose of the inquiry, what will have credibility and what can be done with available time and resources (Marshall et al., 2013).

There were possible causes of conflict in accordance with the literature which involved poor communication, poor cooperation and individual differences (Elmaghri, 2013). In this study, the researcher used the conflict model by Knippen and Green as shown in

Figure 2.7 as a study reference framework. According to this model, the unresolved conflict will create larger problems and become a contagious conflict. When the conflict is infectious, it creates poor communication, poor cooperation and wasted time in the organization. All these eventually will result in poor performance of the organization.

The study found that before the transformation program and the implementation of TMP by the RMN the causes of conflicts were more towards over the wall environment. During the transformation program and implementation of TMP the conflict was as what (M. A. Rahim, 2002) said.

> *"A party is required to engage in an activity that is incongruent with his or her needs or interests."*

5.3.1 Poor Communication

The findings in chapter four show that lack of communication has a significant impact on the conflict between the Production and Engineering departments. One of the managers from the Production department suggested that before the embarkation of the transformation program and the beginning of the program, working in a silo environment was common in the shipyard. Most of the staff reluctance to communicate and share information especially among the departments. In this situation, information was very difficult to get.

> *"Before the transformation program and at the beginning of the transformation program, most of the staffs like to work in a silo and less communication. They don't share the problems openly especially with other departments. So, of course they will not get all the information they want because the information will be coming from many parties/departments."*
>
> *Interviewee #13*

Another manager from the Engineering department informed that in the earlier stage when the Engineering department instructed to involve in the ship repair works the communication with the Production departments was very weak. As Engineering's main responsibility is producing PFD, comprehensive information is very important. Without efficient and effective communication between these two departments friendly drawings production is going to be very tough.

> *"I would say in the earlier stage the communication between us and Production is very poor. Information of engineering specification is very important to produce friendly production drawing. But to get comprehensive information from Production is very difficult especially if we involve in repairing the old ship."*
>
> *Interviewee #1*

Subcontractors participation in ship repair works came under the management of the Production department. Therefore, in terms of ship repair works subcontractor's function did not much different from Production department staff. They have to use PFD to perform their works. The main communication method in performing ship repair works is by using drawing. However, since they used to do works by using a traditional way like, sketch, pictures, sample and experience, they faced problems when Engineering departments issued PFD to them. Some of them did not even know how to read the drawing. When this situation exists, a serious conflict between Engineering and subcontractor which is under the Production department happened.

> *"Communication weaknesses occurred not only between Production and Engineering but also with the subcontractor. Sometime when we discuss how to execute works seems they are understood. But when we check on the ground, they are subcontractor's workers who don't even know how to read drawings. So, we have to teach them slowly. But we must remember that all subcontractors are under Production charge."*
>
> *Interviewee #5*

Poor communication in verbal exchange was registered in Shipyard's Risk Report 2014 which concurred the statement by the *interviewee #5*. Silo working culture as a future challenge as discussed in the Group Strategy Retreat 2009 improving gradually. With the transformation program still going on during the research period, the monitoring from the consultant and commitment from the shipyard management was very helpful and effective in solving this issue. The introduction of PFD as a communication tool for ship repair, resulting in works efficiently, reduced conflict

and improve the relationship. Eventually, PFD also contributed to the better quality, cost and time.

5.3.2 Poor Cooperation

Poor cooperation as one of the findings in chapter four has a significant impact on the conflict between the Production and Engineering departments. A manager in the Production department admitted that lack of cooperation exist between these two departments caused a conflict between them. He concluded that since Production has an advantage on the experience and Engineering has the strength of the theory, it is good if they can cooperate, work together and complement each other.

> *"Actually, we lack cooperation and communication between these two departments. We must have to give and take attitude. Production staffs have more experience but lest knowledge of theory whilst Engineering staffs have more theory but less experience. So, if they can compromise then they can complement each other."*
>
> *Interviewee #13*

Another real conflict of poor collaboration and cooperation that affected the ship repair process was shared by a manager from the Production department. When the workshop is controlled everything without the involvement of the Engineering department, flaws happened.

> *"If we check the KD LEKIU report, all spares requirement is "as per sample", no specification. Why this thing happened, because at that time*

there is no collaboration and cooperation with Engineering. Everything is controlled by the workshop."

Interviewee #14

With the assistance of Korean consultant, collaboration and cooperation between the Production department and Engineering department were materialized. Segregation of works was done where Production focused on the practical aspect of ship repair and Engineering department concentrated on providing data and production requirement.

"Korean consultant considers Engineering as an expert in providing data and production requirements. The consultant also wants production concentrates on practical workshops and vessels while providing data and documents will be done by Engineering."

Interviewee #15

As discussed in chapter four, the report from the Group Strategy Retreat 2009 stated that there was inadequate integration of project management & planning elements exist especially in the Engineering department. It was suggested that focus should be made on cooperation across the departments. The KPI was established to conduct a team building program to establish the esprit de corps. However, to maintain the spirit of cooperation is not a one-off event. It needs continuous activity either intra-department or inter department. With the transformation program still going on during the research period, the monitoring from the consultant and commitment from the shipyard management was very helpful and effective in solving this issue. The

introduction of PFD as intervention, resulting in better cooperation, works efficient, reduced conflict, improve relationship and increased works performance.

5.3.3 Individual Differences

The findings in chapter four show that individual differences have a significant impact on the conflict between the Production and Engineering departments. As found in chapter four, the conflict due to individual differences in terms of age and education level was obvious. Most of the Production department's staffs were senior in age and were experienced as a technician during their service in the RMN. Whilst the majority of the Engineering department's staff were young engineers with working experience of fewer than ten years.

5.3.3.1 Difference of Age

The findings in chapter four show that the difference in age has a significant impact on the conflict between the Production and Engineering departments. Both Production and Engineering managers agreed that difference of age between these two departments became the cause of the conflict.

> *"At initial state of our involvement in ship repair we as production drawing provider experience our counterpart at Production refused to use the drawing issued to them. They used their experience to do the job. Many of Production staff are older than us from Engineering. We feel that they assumed our young engineers still new and need more experience to do work."*
>
> *Interviewee #1*

"I can't deny that age has an impact. Because many of the mechanical staff in Production are already senior. Our engineers mostly still young. So, that trust is not easy to get from Production. In this score often conflict happened, and a lot of argument were faced by our young engineers."

Interviewee #4

"From my observation…yes, age becomes one of the factors of the conflict. As I explained before, the conflict happened when majority Production staffs feel that they are older than the Engineering staffs both in term of age and service in the shipyard."

Interviewee #13

Besides age, the ability of young engineers to respect the old staff is important. Some of the young engineers were not used to go down and discuss with the old technician from the Production department during the process of producing PFD. When this kind of situation happens, it is very difficult to get cooperation from the senior staff from the Production department.

"I can see that age contributed to the conflict. Because old people have a lot of experience. If the young do not know how to respect the old man, it's a problem. Like staff from Engineering is mostly young people. Production staff most of them are senior in age."

Interviewee #15

In this case the Consultant suggested the young engineers go down to the workshop or ships to check and appreciate the actual problem. When the young engineers changed their way of doing work and used to visit workshops and ships, the work

together environment was observed. When this environment happened, the process of gathering information became efficient, eventually the production and implementation of PFD improved.

5.3.3.2 Education Level

The findings in chapter four show that education level has a substantial impact on the conflict between the Production and Engineering departments. In general, before the introduction of PFD the working environment in Production was commonly through the traditional method. So, when the Engineering introduced the PFD

> *"Generally, non-executive in Production like to do works based on their experience or traditional way like sketch or as per sample. Our engineers are trying hard to provide proper production drawing and teach them how to read a drawing. Initially they were reluctant to use drawing that we are provided. This situation creates conflict."*
>
> *Interviewee #1*

However, with the assistance of the transformation program, the reluctance of using PFD by the Production staff gradually solved. This was due to the effective monitoring by the consultant and the good commitment by the shipyard management. The Production staff eventually convinced that the PFD could improve the ship repair process and reduced the conflict.

5.4 The Improvement of IGC

From the practical point of view, the PFD was very effective and resulted in very significant improvement in completing the ship repair work within time and better quality. This achievement made the relationship between Engineering and Production improved and created a conducive work environment. The comprehensive design and the availability of spares often became the key factors of the ship repairs besides the knowledge and experience. With the transformation program going on and the RMN moved for changing the approach of ship repair from the old method and the TMP as a new method, it's helped a lot. The old method of ship repair separated the scope of work and the requirement of the spares. While the Shipyard is performing the scope of works, the RMN will supply the spares. At the current state, it's common that the delay of work's completion caused by the delay of spares received. At the desired state, the problems of delay in spares supplied were reduced.

The model by Knippen and Green as Figure 2.7 used by the researcher in the context of Shipyard with the additional conflict improvement elements of the transformation program, Kurt Lewin 3-Steps Model of Change and PFD. The improvement of conflict has been improved communication, cooperation, and time management. Ultimately, the performance of the organization increased.

5.4.1 Strategy to Resolve Conflict

The IGC or interdepartmental conflict between the Production and Engineering departments is focused on ship repair work. Therefore, the solution strategy is to improve ship repair work in terms of quality, cost of execution and time taken to complete the project. In this study PFD has been proposed as a strategy to overcome the conflict that arises. PFD recommended by Korean consultant covers not only the drawing requirements for ship repair work for workshops and onboard ships but also equipped with material and spare parts comprehensively and friendly. Through the evidence discussed in chapter four, it clearly demonstrates the effectiveness of PFD as a strategy to tackle the conflicts encountered. With the PFD, individual differences like age, education, culture and so on managed to resolve as everybody referring to the same baseline.

5.5 Theoretical/Other Findings of Research

Another finding of the study was on the lack of comprehensive design specification information. The aging factor was the most common causes of this matter. Engineering has to work extra miles for gathering the information. Survey onboard ships, internet research, communication with the OEM, visit the customer's engineering and logistic depot among other actions need to be done.

In a material aspect, the difficulty of gathering the material specification information was very challenging. As for the RMN, other than Frigate and PV class of ships the rest were very tough to identify some of the materials due to aging factors. This fact not only came from the observation but also from the interview as follow.

> *"There is an improvement after Korean consultant asks us to consult with the Engineering whenever we receive a survey report. But the Engineering also has their limitation when information is not in the BR, they have to refer to the workshop or get it from the ship."*
>
> *Interviewee #15*

Another input from the interview was lack of material priority information from the PMT. This information in many cases was not fed to the MCO and resulted in late action to purchase, late delivery of material and eventually contribute to the late of production.

> *"Like Material Controller Office (MCO) there are some items that we have to seek confirmation from the Navy before proceed further. Sometimes feedback from the Navy is slow. Sometimes feedback from the Navy is within time, but we do not know which one is a priority unless the PMT tells us certain priority items and we will key in for further action."*
>
> *Interviewee #15*

5.6 Summary of Research and Other Findings

From the interview conducted, the causes of conflict could be classified into three areas which are individual differences, organizational factors and behavioral factors. Individual differences comprise of age and educational level. Behavioral factors consist of lack of trust and unfair treatment whilst organizational factors entail of

role incompatibility, work stress, lack of communications and organizational change. When the conflict is infectious, it creates poor communication, poor cooperation and wasted time in the organization which all these eventually resulted in poor performance of the organization. The PFD that introduced by the Korean consultant managed to become a medium in reducing the conflict between Engineering and Production. This finding triangulated by the facts that encountered from the documents review and observations in the field.

5.7 Contribution of Research

This study makes a significant contribution to both theoretical and practical aspects. Over-the-wall syndrome in the Shipyard and the embarkation of the transformation program by the management to overcome the syndrome was very successful. The used of Kurt Lewin 3-Steps Model in the changed of the conventional approach of ship repair work to the new approach of using PFD was also another significant success initiative.

5.7.1 Theoretical Contributions

The Kurt Lewin 3-Steps Model of Change was practiced during the current state, middle of the state and finally at the desired state of conflict. At the current state when the conventional approach of performing works became norms, the unfreeze step needs to be applied. The PFD was used to change from the conventional

approach to the modern way of doing ship repair works in the shipyard. Even though in the beginning and middle stage those involved were resisting to follow, but eventually it became new better practice and accepted well at the desired state.

The transformation program acted as a lubricant to the change process. As discussed in chapter 2, the transformation program was launched in 2011 and reaffirmed in 2015. The KBP as the approach that has been used in the transformation program was very effective in driving a change. It was started as small as morning exercise and morning cleaning which involved all staffs until top management in the Shipyard to the serious matter in business, like in this case the PFD.

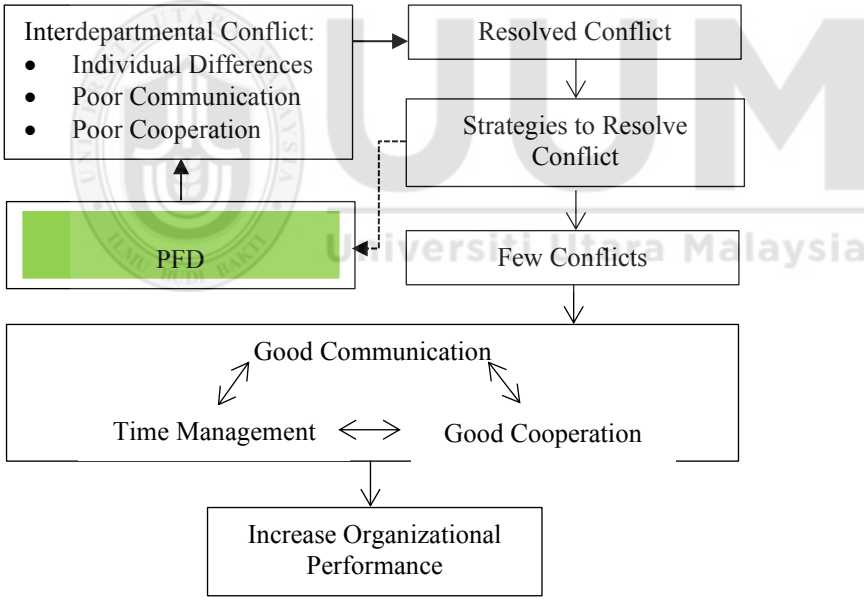

Figure 5.1
Conceptual Framework
Source: Adapted from Knippen and Green Model (Henry, 2009)

The PFD contributed a very significant element in ensuring the ship repair works organized and carried out in a proper manner towards achieving quality, cost and completion date agreed in the contract. Figure 5.1 shown the theoretical contribution based on the model adapted from Knippen and Green. This study expended the Knippen and Green Model with the added of PFD as the strategy used to resolve the conflict.

5.7.2 Practical Contributions

Production friendly information is very important for Engineering in order to lead the ship repair work process. It consists of design specification and material information. Comprehensive information for both design specification and material information are vital for the development of PFD. The more comprehensive the information the more friendly the PFD will be. In this study, the PFD that implemented for the ship repair works proven provides a very significant impact on the delivery of a ship under repair on time or before time as agreed in the contract.

5.8 Conclusion

The discussions were mainly further elaborate on the finding result for the Research Questions of the study. The conclusion of the study is illustrated in Table 5.1.

Table 5.1
The outcome of Study

Research Question (RQ)	Outcome
RQ1	Improvement communication Improvement cooperation Improvement time management Improvement organization performance
RQ2	Implementation of PFD

The RQ #1 was discussed on the possible causes that contributed to the conflict from the previous study and related to the Knippen and Green Model. The improvement of conflicts resulted in good communication, good cooperation, and good time management which ultimately increased the organization performance. The improvement of communication and cooperation were consistent with the verses in the Quran, "O mankind! We created you from a single (pair) of a male and a female, and made you into nations and tribes, that ye may know each other (not that ye may despise (each other)." Surah Al-Hujurat: Verse 13 (49:13).

The RQ #2 was discussing how to resolve the conflict between the Engineering and Production departments. The TMP requirement by the RMN indirectly became the starting point for the Shipyard to change from the conventional method to the new

method of the ship repair process. The introduction of PFD eventually played a very significant medium for the enhancement of the relationship between the Engineering and Production departments which reduced the conflict between them.

5.9 Recommendations and Future Research

This study focusses on the overall performance of carrying out ship repair by the shipyard and find out on how to deliver the project before or on time as agreed in the agreement. Another area for future research can be explored is the impact of implementation PFD towards the performance in term of cost and return on investment. Other than that, performance in term of quality is also one of the areas should be explored.

5.9.1 Recommendations

The modern theory of conflict awareness should be introduced to all level of staff in the Shipyard. The acceptance of conflict in modern theory makes it different from the avoiding conflict in the traditional theory of conflict.

The traditional engineering or sequential engineering (SE) environment of works in Shipyard must change to modern engineering or Concurrent engineering. The SE created over the wall phenomena and resulted in poor performance in the organization.

The motivation for maintaining and improving the effort to gather friendly information must be continued. This is to assure that the Engineering keeps on continuing in issuing better quality of PFD.

5.9.2 Future Research

The detail data are pertaining the cost, quality and time with regard to the implementation of PFD as compared to before the implementation has to study. The study will provide more convincing evidence and contribution to knowledge.

Over the wall environment in the Shipyard exists a long time ago. This phenomenon has been embedded in the working place throughout the Shipyard. Exploration in this area will be fruitful for the better future of the Shipyard.

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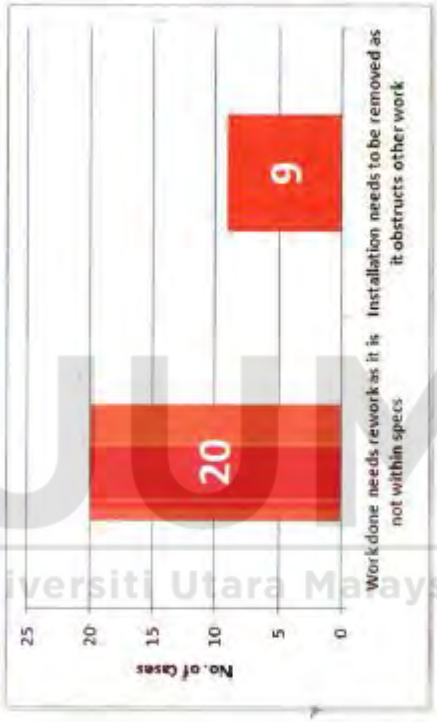
Appendix A
Rework Study

Rework Study

No.	Rework Category	Possible Causes Due To	Cases
1	Work done needs rework as it is not within specs	Specifications/Drawings	20
2	Installation needs to be removed as it obstructs other work	Planning/Scheduling	9
		Total	29



Appendix B

Table of Profit and Loss

ABS

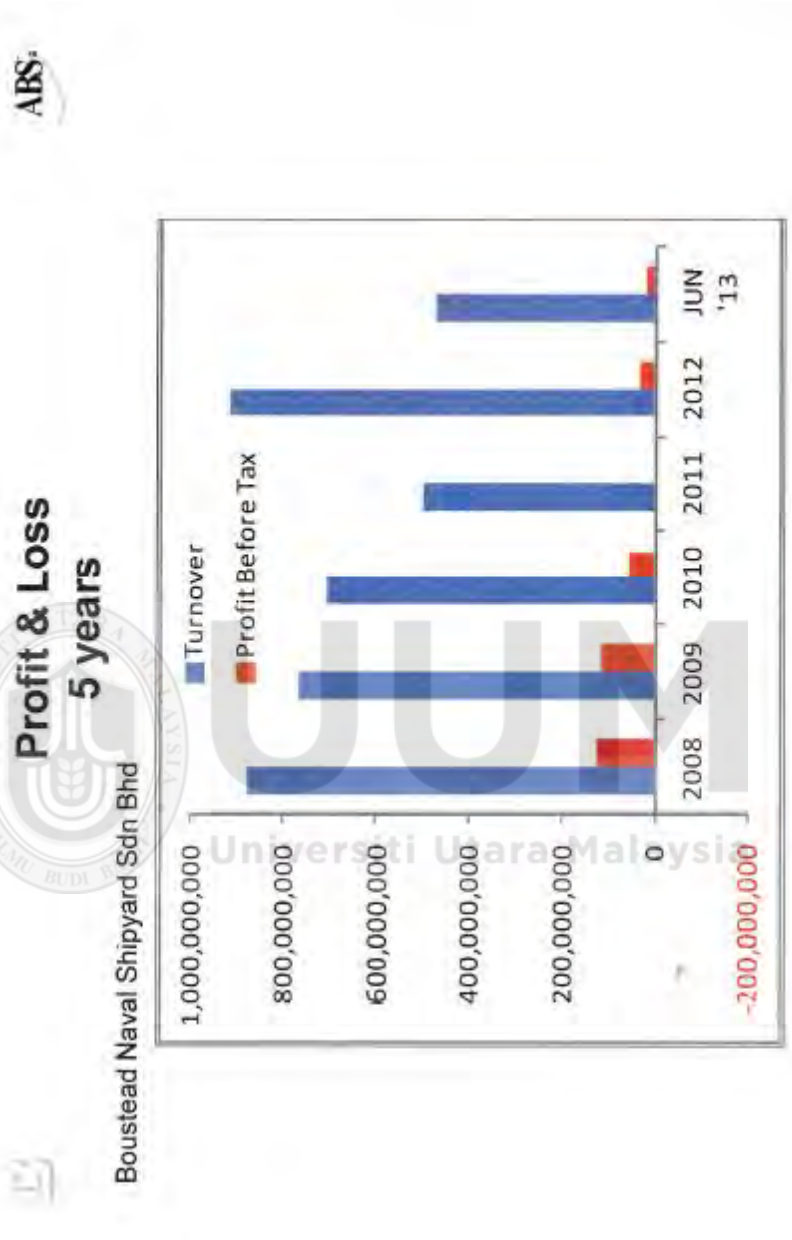
Profit & Loss
5 years

Boustead Naval Shipyard Sdn Bhd

	2008	2009	2010	2011	2012	JUN '13
Turnover	879,445,206	764,779,905	706,725,682	499,416,123	914,497,921	467,542,579
Profit Before Tax	122,408,898	111,223,140	53,817,433	2,077,813	32,375,123	20,332,694
PBT ratio %	13.9%	14.5%	7.6%	0.4%	3.5%	4.3%

Appendix C

Graph of Profit and Loss



Appendix D

Project Schedule Completion Date

Project Schedule Completion Date

ABS

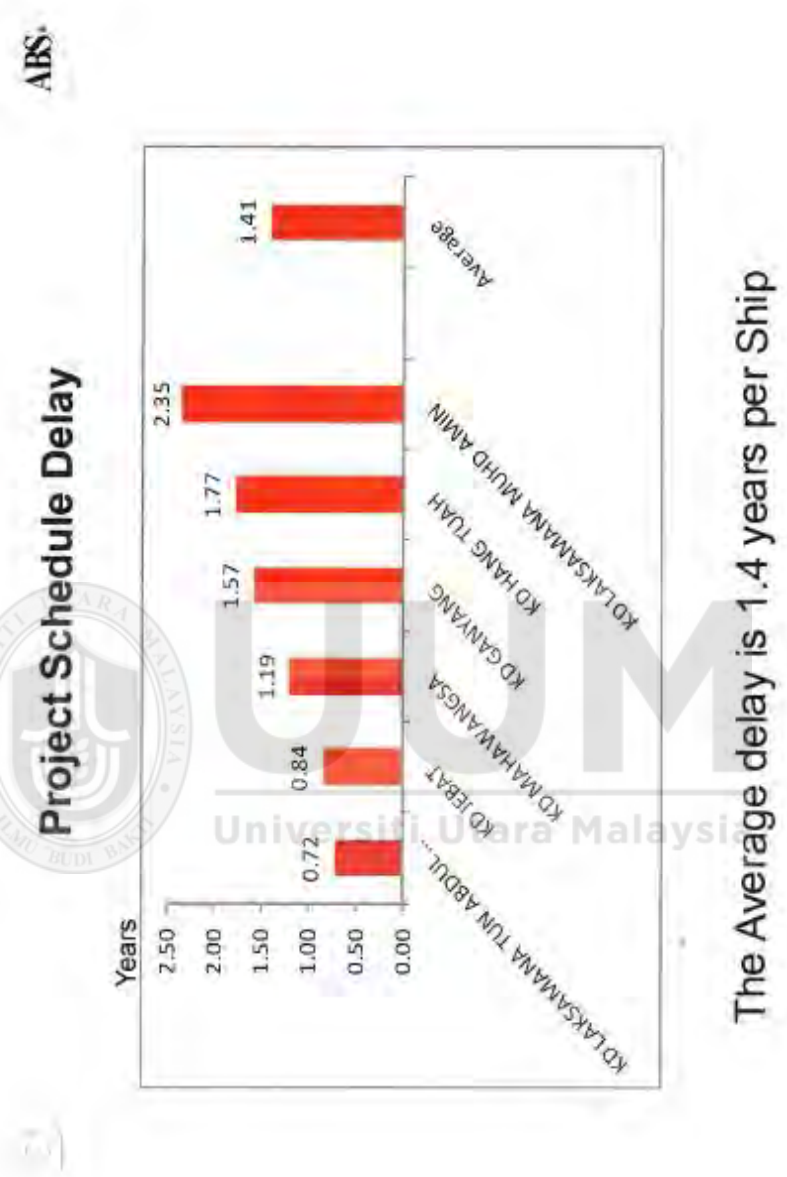
SHIP REFIT PROJECT

#	SHIPS	Start Date	Sheduled Completion Date	Actual Completion Date	Days Delayed	Months Delayed	Years Delayed
1	KD GANYANG	26/12/2008	07/11/2009	27/05/2011	566.00	18.87	
2	KD LAKSAMANA MUHD AMIN	12/08/2008	28/08/2009	23/12/2011	847.00	28.23	
3	KD MAHAWANGSA	20/01/2009	21/01/2010	24/03/2011	427.00	14.23	
4	KD JEBAT	10/03/2009	01/06/2010	29/03/2011	301.00	10.03	
5	KD HANG TUAH	03/11/2009	01/11/2010	31/07/2012	638.00	21.27	
6	KD LAKSAMANA TUN ABDUL JAMIL	14/03/2011	13/03/2012	26/11/2012	258.00	8.60	
				Average	506.17	16.87	

The longest delay is 28 months or 2.4 years.

Appendix E

Project Schedule Delay

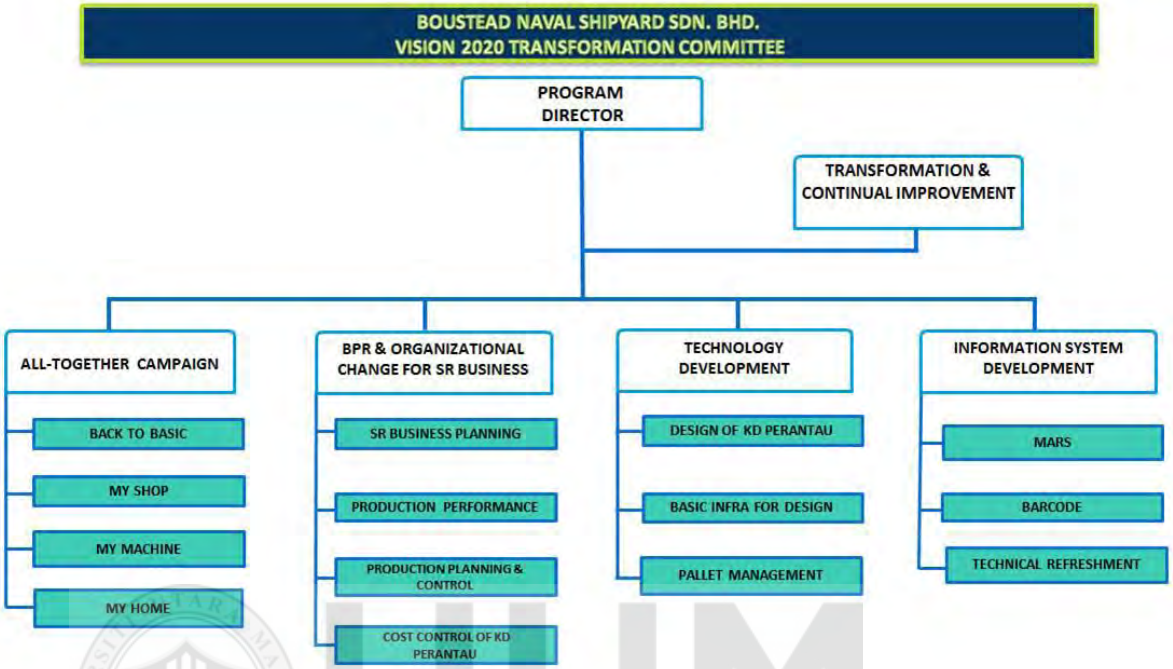


Appendix F

Transformation Program

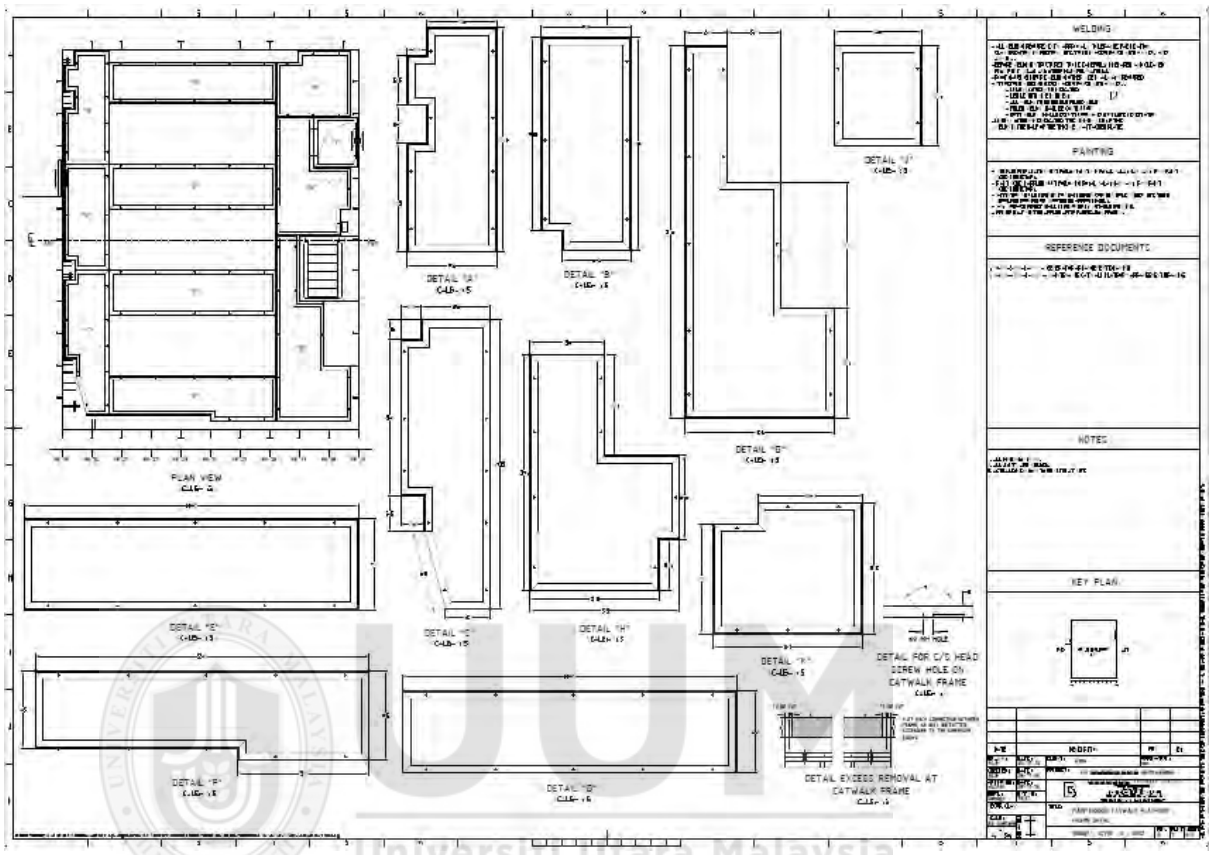
Appendix G

Shipyard Main Transformation Committee



Appendix H

Sample of Production Friendly Drawing



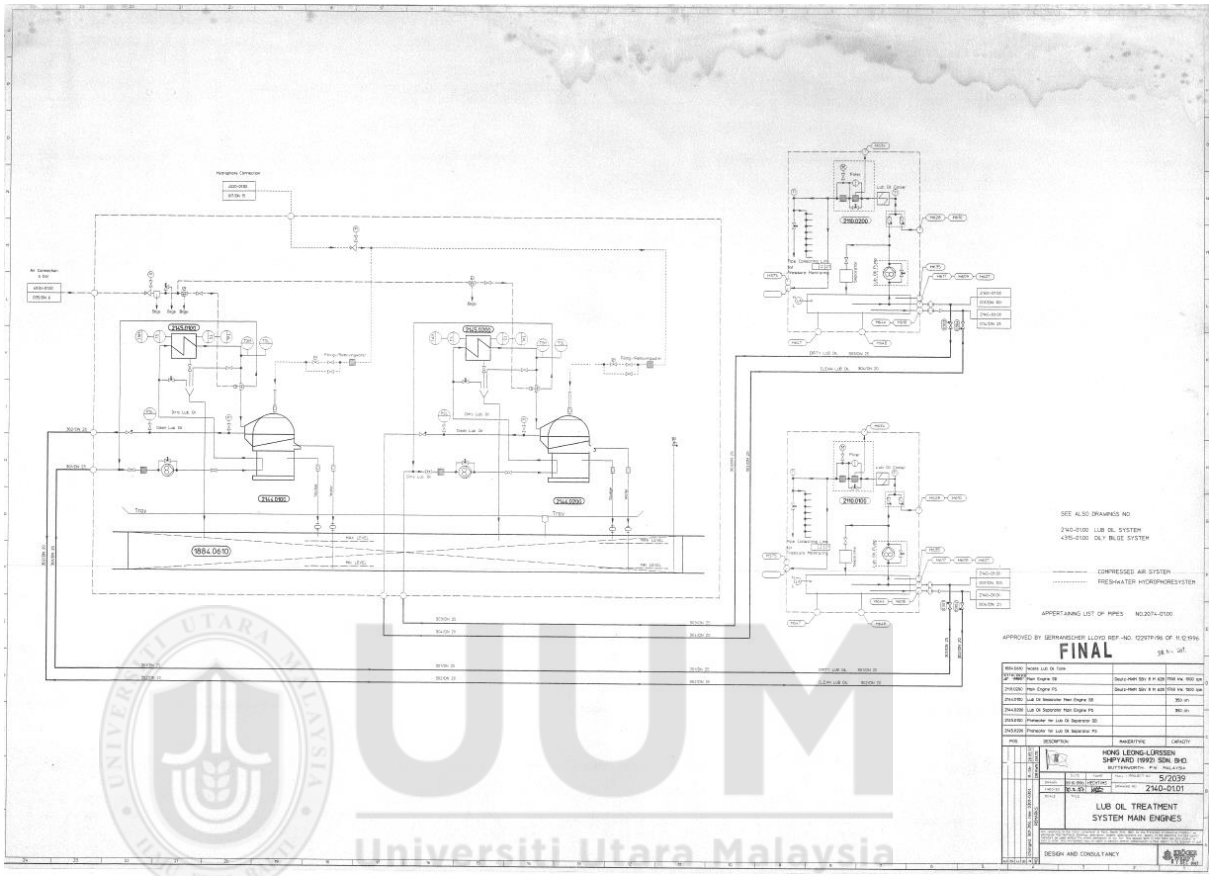
PART LIST NO.	REV.	DRAWING NO.	JOB NO.	ASSEMBLY	PIECES	SHEET	DRAWING TITLE
	0	106001-62210-K-0002		62210		2/2	**MAINTENANCE CATWALK PLATFORM FRAME DETAIL**

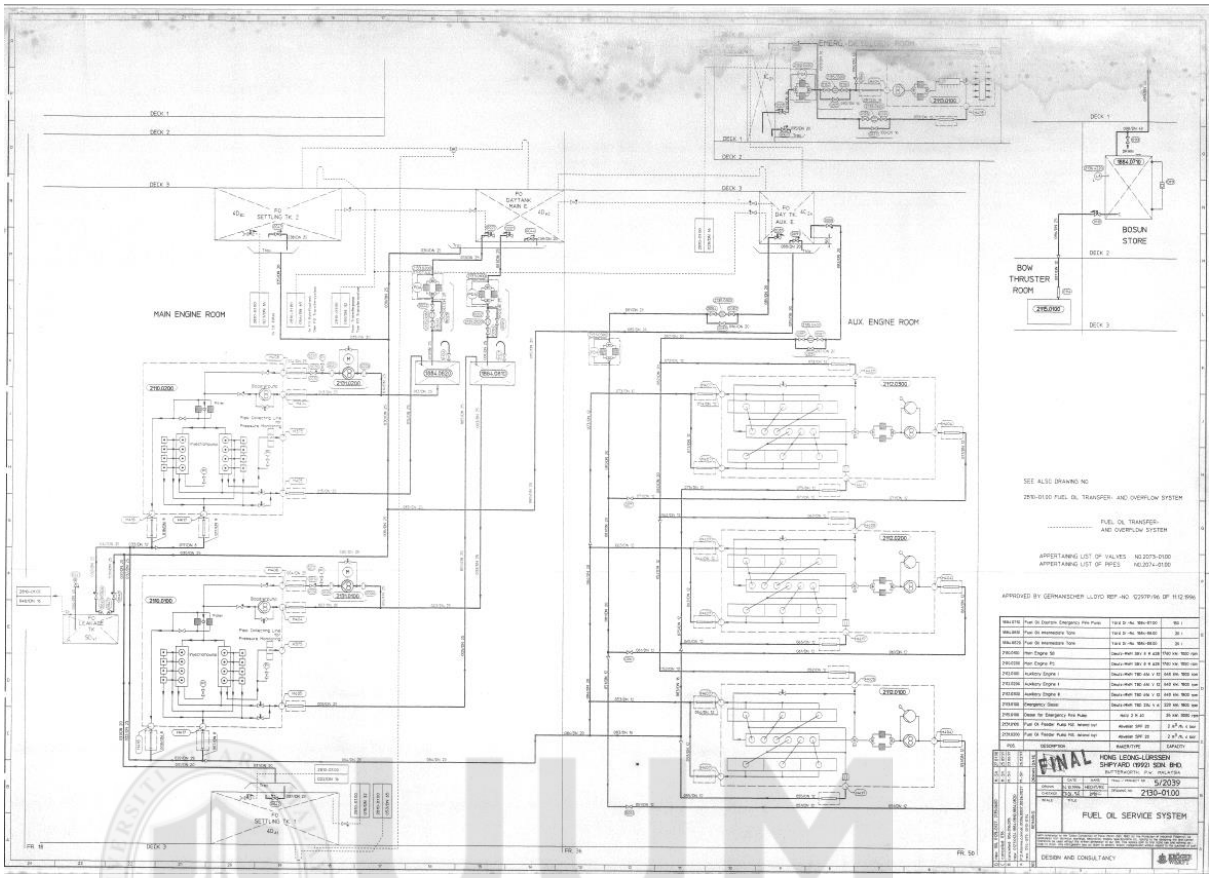
PART LIST MATERIAL

NO.	MATERIAL NO.	TEXT	MATERIAL	TOTAL QUANTITY	UNIT	QUANTITY PER ITEM	UNIT	POS.	ASSEM.	UNIT ITEM (S)	UNIT	POS	WEIGHT (kg)	DIM. PER ITEM LENGTH (m)	DIM. PER ITEM WIDTH (mm)
1	142627	HOT ROLLED ANGLE EN 10056-1	ST 52-3	85.2	m		m				pcs		820.48		

Appendix I

Sample of Non-Production Friendly Drawing





Appendix J
Reliability and Validity of Archival Source

No	Purpose	Date	Source	Classification
1	Proposal on BN Shipyard Review and Innovation based on Korean Best Practice dated 20 November 2012.	20 November 2012	Consultant	Unclassified
2	Business Review by Asian Business Solutions (ABS) Sdn. Bhd. dated 29 July 2013.	29 July 2013	Consultant	Unclassified
3	Action Research KD LEKIR – Implementation of Korean Best Practice 16 November 2013.	16 November 2013	Consultant	Unclassified
4	Climate Survey was administered to1079 staff on 27 January 2014 over 4 sessions at Lumut BN Shipyard. The valid response received from 911 respondents, representing 84% response rate. The survey was conducted by Might Meteor in conjunction with the implementation of the Korean Best Practices.	27 January 2014 – 27 February 2014	Consultant	Unclassified
5	New Generation Patrol Vessel project. Data collected from progress reports from 2006 - 2010. Summary of the report was used as lessons learned for the LCS Project.	September 2014	Shipyard	Unclassified
6	Report on LCS. A review on the preparation for the LCS program based on reviews and documentation by DCNS the French shipbuilder collaborating with the Shipyard.	18 November 2014	Shipyard	Unclassified
7	Board of Inquiry Report on KD PERANTAU. The incident on Tuesday 18 November 2014.	5 December 2015	Independent Board	Private and Confidential
8	Report on the Board of Inquiry on the Incident of KD PERANTAU on 18 November 2014.	28 February 2015	Independent Board	Confidential
9	GIA Report on Procurement 28 October 2014.	28 October 2014	External Auditors	Private and Confidential
10	GIA Report on LCS Program 4 February 2015.	4 February 2015	External Auditors	Private and Confidential
11	Employee Engagement Study.	9 June – 27 June 2014	Consultants	Unclassified

Appendix K
Protocol of Interview

PROTOCOL OF INTERVIEW

INTERNAL CONFLICT IN SHIP REPAIR WORKS: INTRODUCING PFD AS INTERVENTION

Date : _____

Time : _____

Section/Unit : _____

Name & Staff No : _____

Position : _____

_____

Directive (to be read to the interviewee)

These interview sessions were conducted as a part of the research study in Internal Conflict in Ship Repair Works: Introducing PFD as Intervention. The purposes of this research study are:

- To examine the possible causes that contribute toward the conflict.
- To recommend practical solutions to address the conflict by producing a relevant and practicable work system/process in the organization.

Interview sessions will be audio-recorded and write out within a day of the completion of the interviews sessions.
The confidential information and it only use in this research study. The copy of the written transcript from the interview will be given to interviewee. Interviewees were guaranteed complete secrecy and their responses would keep completely confidential. The interview will be conducted in 5 mains topics. This entire interview is designed to take approximately one hour. The interviewee can freely ask any question regarding this interview session.
.

INTERNAL CONFLICT IN SHIP REPAIR WORKS: INTRODUCING PFD AS INTERVENTION

Part 1: Introduction and Demographic Information

1. Tell me about yourself?

2. How long have you been in this company?

3. Can you describe your work in the company?

4. Tell me about your work experience in your Department?

5. What is your technical background?

6. What do you understand about conflict?

7. From your understanding is conflict good or bad for the organization?

Part 2: Research Question No.1

What are the possible causes that contribute to the conflict between the Production department and the Engineering department?

Follow-up questions:

a. Does the lack of communication between the Production department and the Engineering department contribute to the conflict?

b. Does the lack of cooperation between the Production department and the Engineering department contribute to the conflict?

c. Does the difference in age between the Production department and the Engineering department contribute to the conflict?

d. Does the difference in educational level between the Production department and the Engineering department contribute to the conflict?

e. In your opinion, are there any other factors causing the conflict between these two departments?

Part 3: Research Question No.2

In what way can the relationship between the Production Department and the Engineering Department be enhanced or improved to address the conflict?

Follow-up questions:

a. In your opinion, the above-mentioned conflict belongs to cognitive conflict (task-related conflict) or affective conflict (relationship-related conflict) or any other kind of conflict?

b. In your opinion what is the best way to resolve the conflict between the Production and Engineering Department?

Part 4: Closing the Interview Session

Is there anything else that you would like to offer that I did not specially ask about?

Researcher's Remarks:

Thank you for your valuable time in participates for the interview session. The information that you have contributed will be significant and important to the success of this research study.If you have any further thoughts on this topic, you are welcome to call me. Thank you.

.

INTERVIEW TRANSCRIPT

INTERNAL CONFLICT IN SHIP REPAIR WORKS: INTRODUCING PFD AS INTERVENTION

Date : _____

Time : _____

Section/Unit : _____

Name & Staff No : _____

Position : _____

Directive (to be read to the interviewee)

These interview sessions were conducted as a part of the research study in Improvement in Ship Repair Works: Experience in Local Shipyard. The purposes of this research study are:

- To examine the possible causes that contribute toward the conflict.
  Untuk meneliti kemungkinan penyebab yang menyumbang kepada konflik.

- To recommend practical solutions to address the conflict by producing a relevant and practicable work system/process in the organization.
  Untuk mencadangkan penyelesaian praktikal untuk menangani konflik dengan menghasilkan sistem / proses kerja yang relevan dan praktikal dalam organisasi.

Interview sessions will be audio-recorded and write out within a day of the completion of the interviews sessions. The confidential information and it only use in this research study. The copy of the written transcript from the interview will be given to interviewee. Interviewees were guaranteed complete secrecy and their responses would keep completely confidential. The interview will be conducted in 5 mains topics. This entire interview is designed to take approximately one hour. The interviewee can freely ask any question regarding this interview session.

INTERVIEW RESULT

Part 1: Introduction and Demographic Information

Part 2: Research Question No.1
What are the possible causes that contribute to the conflict between the Production Department and the Engineering Department?

Part 3: Research Question No.2
In what way can the relationship between the Production Department and the Engineering Department be enhanced or improved to address the conflict?

Part 4: Closing the Interview Session
Is there anything else that you would like to offer that I did not specially ask about?

Verification

Signature : _____ Date Interview: _____

Thank you for your time and willingness to participate in this research study. As mentioned earlier, this information
is confidential and it only will be used for this research project. You will receive a copy of the written transcript
from this interview for your review.

Appendix L
Sample of Nvivo11 Application Output

Coding Sources – Causes of Conflict

<Internals\\Documents Review\\BNS Rationalisation Program\\BNS RP Task 2 Final Report\\7 Spares Management> - § 1 reference coded [0.56% Coverage]

Reference 1 - 0.56% Coverage

only a few individuals have knowledge in spare parts inventory management which is not enough to execute widespread improvement.

<Internals\\Documents Review\\BNS Rationalisation Program\\BNS RP Task 2 Interim Report\\1 Introduction> - § 1 reference coded [1.55% Coverage]

Reference 1 - 1.55% Coverage

during on-board installation work, there could be more than one task that is to be executed at the same time within the same compartment.

<Internals\\Documents Review\\BNS Rationalisation Program\\BNS RP Task 2 Interim Report\\2 Current Status of KD LEKIR> - § 1 reference coded [0.14% Coverage]

Reference 1 - 0.14% Coverage

Critical problem: Shortage of Manpower

<Internals\\Documents Review\\BNS Rationalisation Program\\BNS RP Task 2 Interim Report\\7 Work Execution Program (WEP)> - § 1 reference coded [0.57% Coverage]

Reference 1 - 0.57% Coverage

formation of group is too big and difficult to have close communication with all workers. This factor will result to lack of information delivery.

<Internals\\Documents Review\\BNS Rationalisation Program\\BNS RP Task 3 Final Report\\3 Intensive Monitoring & Control> - § 1 reference coded [0.57% Coverage]

Reference 1 - 0.57% Coverage

Each of the works and jobs that need to be done is related to each other. Without the spares, installation is impossible, if not installed finishing cannot be done, last touch is painting.

<Internals\\Documents Review\\BNS Rationalisation Program\\BNS RP Task 3 Interim Report\\5 Spares Management> - § 1 reference coded [0.81% Coverage]

Reference 1 - 0.81% Coverage

separation of design and construction, lack of coordination and integration between various functional disciplines, poor communication, etc.

<Internals\\Documents Review\\BNS Rationalisation Program\\BSN RP Task 1 Report V2.1> - § 2 references coded [0.21% Coverage]

Reference 1 - 0.13% Coverage

Focus on problem-solving seems a bit deficient in materials and other areas, as compared to production.

Reference 2 - 0.09% Coverage

Need for more detailed production information in the issued drawings.

<Internals\\Documents Review\\LCS Report\\Annexures to LCS ISSUES & LESSON LEARNT> - § 3 references coded [1.09% Coverage]

Reference 1 - 0.31% Coverage

Re-work resulting from out-of-sequence work carried out in Penang

Reference 2 - 0.42% Coverage

Multiple handling of material causing damages and increase unnecessary man-hours/costs.

Reference 3 - 0.36% Coverage

Insufficient manpower, ship hopping. Workers being mobilized to other ship.

<Internals\\Documents Review\\NCR\\NCR table_others> - § 1 reference coded [1.63% Coverage]

Reference 1 - 1.63% Coverage

Accomodation Ladder; 1. Ladder & fittings have been installed except for springs. Lack of clear communications between Dockmaster and Loc.15 has resulted in the springs not installed. Repair of Bucket Lifts; 1. Lack of coordination of work sequence between Loc.08, 15 and Dockmaster. 2. Staff (Loc.15) have been mobilized to complete underwater works for Zone 900 KD Lekir and Warranty Work for RAC KD Kasturi at the same time.

<Internals\\Documents Review\\Preparation for LCS> - § 1 reference coded [2.36% Coverage]

Reference 1 - 2.36% Coverage

the Yard is not sure of what they are supposed to do and in the end is assuming that the French will resolve all our problem eventually.

<Internals\\Documents Review\\PV ISSUES & LESSON LEARNT> - § 1 reference coded [0.03% Coverage]

Reference 1 - 0.03% Coverage

1) rework

<Internals\\Documents Review\\Source Data 3.6.16\\KD Pahang Material Outstanding final 050416> - § 5 references coded [2.09% Coverage]

Reference 1 - 0.29% Coverage

Material Handler not really open -minded in sharing any trouble or problem raised during their work process.

Reference 2 - 0.33% Coverage

Incomplete specifications - Material Handler need to ask frequently from workshop for detail specification and information.

Reference 3 - 0.38% Coverage

Material description is slightly different between TT2 and MARS. Redundancy of material list in the MARS for the same parts and specification.

Reference 4 - 0.61% Coverage

Material Handler not aware there are EBASAL and TEM as references in sharing folder (H:). It's not actually Material Handler's responsibility to find all the detail specification, it should be prepared/done by Workshop (end user)

Reference 5 - 0.47% Coverage

Lack of skill in computer literacy, most of the Material Handler was old people. They not very creative in searching the information in the system compared to young generation.

<Internals\\Interview Transcript-Eng\\1E&E-HOU-Azmi> - § 5 references coded [6.17% Coverage]

Reference 1 - 0.66% Coverage

Konflik berlaku apabila berurusan mengenai production drawing disebabkan kebiasaan kerja di Jabatan Pengeluaran.

Reference 2 - 2.95% Coverage

NGPV dibina oleh BN Shipyard dan semua lukisan kejuruteraan lengkap ada dalam simpanan manakala kapal-kapal lain dibina di luar Negara dan lukisan kejuruteraan lengkap disimpan oleh syarikat pembuat kapal berkenaan. Cabaran mendapatkan informasi yang dimaksudkan adalah dari segi spesifikasi teknikal peralatan kapal. Cabaran ini menjadi lebih getir jika kapal semakin berusia dan kebanyakan dokumen dan lukisan kejuruteraan bukan sahja tidak lengkap tetapi juga banyak yang telah using dan hilang.

Reference 3 - 0.90% Coverage

Perbezaan umur sememangnya mempunyai impact terhadap level konflik. Kebanyakan staf Jabatan Kejuruteraan adalah muda berbanding staf Jabatan Pengeluaran.

Reference 4 - 0.77% Coverage

Jabatan Pengeluaran lebih melihat kepada pengalaman manakala Jabatan Kejuruteraan melihat kepada aspek teori secara profesional.

Reference 5 - 0.89% Coverage

Masalah lemah komunikasi sememangnya ada berlaku menyebabkan proposal teknikal dan lukisan kejuruteraan tidak dipersetujui dan terpaksa dibuat pindaan.

<Internals\\Interview Transcript-Eng\\2Hull -HOU-Shahrin> - § 2 references coded [2.69% Coverage]

Reference 1 - 1.20% Coverage

Conflict happens when Production Team does not follow 100% drawing that has been passed to them.

Reference 2 - 1.50% Coverage

if Engineering Team gives a new drawing, Production Team failed to follow the new one and still follow the old drawing.

<Internals\\Interview Transcript-Eng\\2Hull Outfit-Alif> - § 5 references coded [3.86% Coverage]

Reference 1 - 0.67% Coverage

Jabatan Pengeluaran melaksanakan kerja-kerja merekan menggunakan sampel, lukisan tangan, gambar dan pengalaman.

Reference 2 - 1.26% Coverage

Jabatan Kejuruteraan mula menghantar Production Drawing untuk digunakan bagi menggantikan kaedah kebiasaan mereka bekerja, konflik berlaku dan kebanyakan staf Pengeluaran merasa keberatan oleh beberapa sebab.

Reference 3 - 0.79% Coverage

Konflik meningkat apabila syarikat mula mengambil Konsultan dari Korea Utara dan mereka memperkenalkan PFD untuk dilaksanakan.

Reference 4 - 0.41% Coverage

Perbezaan umur sememangnya mempunyai impact terhadap level konflik.

Reference 5 - 0.73% Coverage

Tahap Pendidikan mempunyai kesan terhadap tahap konflik kerana kedua-dua jabatan melihat sesuatu perkara secara berbeza.

<Internals\\Interview Transcript-Eng\\2Hull Outfit-Hizam> - § 1 reference coded [0.67% Coverage]

Reference 1 - 0.67% Coverage

Jabatan Pengeluaran melaksanakan kerja-kerja merekan menggunakan sampel, lukisan tangan, gambar dan pengalaman.

<Internals\\Literature Articles\\Conflict\\A Fuzzy Neural Network Approach for Contractor Prequalification> - § 1 reference coded [0.23% Coverage]

Reference 1 - 0.23% Coverage

Contractor prequalification can be regarded as a complicated two-group nonlinear classification problem, in which decisions are made according to the prequalification criteria, contractor's attributes and prequalifier's judgement.

<Internals\\Literature Articles\\Conflict\\Aalst - 2012 - Process mining manifesto> - § 2 references coded [0.12% Coverage]

Reference 1 - 0.07% Coverage

Event data may be incomplete. A common problem is that events do not explicitly point to process instances.

Reference 2 - 0.05% Coverage

Noise and incompleteness make process discovery a challenging problem.

<Internals\\Literature Articles\\Conflict\\Aftab, Ismail , Yasmin ,Tarmizi - 2013 - Web Based Risk Assessment Technique For Time And Cost Overrun (WRATTCO) A Framework> - § 1 reference coded [1.15% Coverage]

Reference 1 - 1.15% Coverage

While Alaghbari et al. (2007) studied the problem of time overrun and found that the top ten significant factors of time overrun include financial difficulties by owner, financial problems by contractor, supervision too late, slowness in making decisions and slow give instructions by consultant, lack of material by external factor, poor site management, materials shortage, construction mistakes and delay delivery of materials by contractor, slowness making decision by owner, lack of experience and incomplete documents by consultant.

<Internals\\Literature Articles\\Conflict\\Ahmed, Azhar - 2002 - Construction delays in Florida An empirical study> - § 1 reference coded [0.14% Coverage]

Reference 1 - 0.14% Coverage

Because of the overriding importance of time for both the Owner (in terms of performance) and the Contractor (in terms of money), it is the source of frequent disputes and claims leading to lawsuits.

<Internals\\Literature Articles\\Conflict\\Ali, Al-Sulaihi, Al-Gahtani - 2013 - Indicators for measuring performance of building construction companies in Kingdom of Saudi Arabia> - § 1 reference coded [0.16% Coverage]

Reference 1 - 0.16% Coverage

The main problem lies in the fact that financial indicators are lagging indicators, in the sense that they tell the results of managerial actions already taken

<Internals\\Literature Articles\\Conflict\\An empirical study on the role of context factors in employees' commitment to change> - § 1 reference coded [0.20% Coverage]

Reference 1 - 0.20% Coverage

This creates a potential common method bias problem that makes the interpretation of zero-order correlations more difficult. Self-serving bias is another possible problem that is inherent with the use of self-report measures.

<Internals\\Literature Articles\\Conflict\\Application of ELECTRE Method for Sub-Contractor Selection Using Interval-Valued Fuzzy Sets> - § 1 reference coded [0.21% Coverage]

Reference 1 - 0.21% Coverage

Due to lack of information regarding to attributes, the classical MCDM methods cannot effectively be applied in the problem solving.

<Internals\\Literature Articles\\Conflict\\Arif, Kulonda, Egbu - 2011 - Enterprise-wide information system for construction A document based approach> - § 1 reference coded [0.22% Coverage]

Reference 1 - 0.22% Coverage

efficient and informal communication networks. They can afford fast response to internal problem solving. Small and medium enterprises often lack time or resources to identify and use important external sources of scientific and technological expertise

<Internals\\Literature Articles\\Conflict\\Aziz - 2013 - Ranking of delay factors in construction projects after Egyptian revolution> - § 1 reference coded [0.08% Coverage]

Reference 1 - 0.08% Coverage

Gunduz et al. [10] identified the delay factors in construction projects, since delays are considered to be a serious problem in the construction industry.

<Internals\\Literature Articles\\Conflict\\Barton, Ambrosini - 2012 - The moderating effect of organizational change cynicism on middle manager strategy commitment> - § 1 reference coded [0.15% Coverage]

Reference 1 - 0.15% Coverage

OCC represents a cognitive aspect of strategizing which is a significant and challenging problem for organizations implementing change since past experiences of unsuccessful change mean that employees will become less likely to support future change initiatives

<Internals\\Literature Articles\\Conflict\\Berente, Vandenbosch, Aubert - 2009 - Information flows and business process integration> - § 1 reference coded [0.07% Coverage]

Reference 1 - 0.07% Coverage

Different groups interpret information differently, and therefore problem-free communication cannot be taken for granted

<Internals\\Literature Articles\\Conflict\\Broadwell, Sastry, Traupman - 2002 - FIG A prototype tool for online verification of recovery mechanisms> - § 1 reference coded [0.13% Coverage]

Reference 1 - 0.13% Coverage

The resource may be scarce at the time of program initialization, thus causing an error at that point.

<Internals\\Literature Articles\\Conflict\\Business Analysis Techniques in Business Reengineering> - § 1 reference coded [0.14% Coverage]

Reference 1 - 0.14% Coverage

Limiting its use to process improvement constrains the problem and solution space, and increases the likelihood of project failure

<Internals\\Literature Articles\\Conflict\\Business process redesign project success the role of socio technical theory> - § 1 reference coded [0.09% Coverage]

Reference 1 - 0.09% Coverage

One reason is that it is almost impossible to use traditional reflective constructs to model such a complex problem.

<Internals\\Literature Articles\\Conflict\\Business Process Re-Engineering and Organizational Performance of Selected Automobile Firms in Southeast of Nigeria> - § 1 reference coded [0.06% Coverage]

Reference 1 - 0.06% Coverage

policy inconsistency and lack of adequate implementation framework, even on important issue that affects national development.

<Internals\\Literature Articles\\Conflict\\Business Process Reengineering and Performance Improvement The Case of Chase Manhattan Banks> - § 1 reference coded [0.16% Coverage]

Reference 1 - 0.16% Coverage

management determines that a significant gap exists between actual and desired results, creating a business problem.

<Internals\\Literature Articles\\Conflict\\Business Process Re-engineering(BPR) The REBUS Approach> - § 2 references coded [0.42% Coverage]

Reference 1 - 0.25% Coverage

it was possible for three different groups to be involved when a request or enquiry was made, which was potentially confusing for the users unsure about whom to contact.

Reference 2 - 0.17% Coverage

An additional problem that was identified was the deficiency of a clear understanding of the ownership of any process.

<Internals\\Literature Articles\\Conflict\\Case-based reasoning for contractor prequalification> - § 1 reference coded [0.31% Coverage]

Reference 1 - 0.31% Coverage

Research efforts have been diverted to the development of Knowledge-Based Systems (KBS) (Russell and Skibniewski, 1990; Ng and Skitmore, 1995) which, although designed to mimic the problem solving process of experts, are weak in modelling ill-defined domains (Riesbeck and Schank, 1989).

<Internals\\Literature Articles\\Conflict\\Cause and Impact of Dispute and Delay the closing of Final Account in Malaysia Construction Industry> - § 1 reference coded [0.10% Coverage]

Reference 1 - 0.10% Coverage

The cause of the problem to closing the final account is because dispute and delay.

<Internals\\Literature Articles\\Conflict\\causes and effects of delays in malaysian construction industry> - § 2 references coded [0.68% Coverage]

Reference 1 - 0.54% Coverage

This study identified 10 most important causes of delay from a list of 28 different causes and 6 different effects of delay. Ten most important causes were: (1) contractor's improper planning, (2) contractor's poor site management, (3) inadequate contractor experience, (4) inadequate client's finance and payments for completed work, (5) problems with subcontractors, (6) shortage in material, (7) labor supply, (8) equipment availability and failure, (9) lack of communication between parties, and (10) mistakes during the construction stage.

Reference 2 - 0.14% Coverage

Six main effects of delay were: (1) time overrun, (2) cost overrun, (3) disputes, (4) arbitration, (5) litigation, and (6) total abandonment.

<Internals\\Literature Articles\\Conflict\\Chaneta - 2010 - Organisational Behaviour> - § 5 references coded [2.16% Coverage]

Reference 1 - 0.61% Coverage

When confronted with a problem, the organisational culture restricts what employees can do by suggesting the correct way with which the organisation solves the problem.

Reference 2 - 0.49% Coverage

The degree to which managers focus on the result or outcomes rather than on the techniques and processes used to achieve those outcomes.

Reference 3 - 0.44% Coverage

The degree to which management decisions take into consideration the effect of outcomes on people with the organisation.

Reference 4 - 0.29% Coverage

The degree to which people are aggressive and competitive rather than easygoing.

Reference 5 - 0.33% Coverage

The degree to which organisational activities emphasise the maintaining of the status quo.

<Internals\\Literature Articles\\Conflict\\Change process characteristics and resistnce to organisational change The role of employee perceptions of justice> - § 1 reference coded [0.08% Coverage]

Reference 1 - 0.08% Coverage

Although there are many potential causes of failed change, ‘resistance to change’ is widely recognised as a significant contributor to this problem.

<Internals\\Literature Articles\\Conflict\\CIB6365> - § 1 reference coded [0.13% Coverage]

Reference 1 - 0.13% Coverage

Problems may grow if they are not identified and addressed promptly.

<Internals\\Literature Articles\\Conflict\\Competitive Priorities Investigating The Need for Trade-Off in Operations Strategy> - § 1 reference coded [0.10% Coverage]

Reference 1 - 0.10% Coverage

When the priorities are not transformed, correlations between every pair are significant.

<Internals\\Literature Articles\\Conflict\\Cost benefit analysis of re-engineering the business process in Nigerian banks> - § 1 reference coded [0.38% Coverage]

Reference 1 - 0.38% Coverage

These according to Hammer
(1995) and Kapoor (2010) are: not focusing on critical processes first; trying to gradually "fix" a process instead of dramatically re-inventing it; making process reengineering the priority and ignoring everything else

<Internals\\Literature Articles\\Over the Wall\\astrategyforimprovingconstructionprojectssustainabilitythroughvaluemgtapproach> - § 1 reference coded [0.28% Coverage]

Reference 1 - 0.28% Coverage

a number of issues have recently arisen such as reworks, time delay, rising costs, lack of communication and coordination, and wastages.

<Internals\\Literature Articles\\Over the Wall\\Charnle+&+Lemon_Exploring+the+process+of+whole+system+design> - § 1 reference coded [0.08% Coverage]

Reference 1 - 0.08% Coverage

sustainability cannot be achieved in the absence of whole systems thinking; addressing the problem at a system level.

<Internals\\Literature Articles\\Over the Wall\\Design for Manufacturing of Composite Structures for Commercial Aircraft> - § 1 reference coded [0.22% Coverage]

Reference 1 - 0.22% Coverage

One
common challenge in product development is risk of conflicts between different departments due to differences in priorities and aim

Coding Sources – Possible Solutions of Conflict

<Internals\\Documents Review\\BNS Rationalisation Program\\BNS RP Task 2 Final Report\\2 Current Status of KD LEKIR> - § 1 reference coded [0.35% Coverage]

Reference 1 - 0.35% Coverage

Engaged AANS on Jan 12th, 2014 (15 manpower) to salvage some work from Estech. However the numbers is not enough to recover the delay works.

<Internals\\Documents Review\\BNS Rationalisation Program\\BNS RP Task 2 Final Report\\3 Intensive Monitoring and Control> - § 1 reference coded [0.06% Coverage]

Reference 1 - 0.06% Coverage

Daily Problem-solving meeting

<Internals\\Documents Review\\BNS Rationalisation Program\\BNS RP Task 2 Final Report\\7 Spares Management> - § 2 references coded [1.76% Coverage]

Reference 1 - 0.57% Coverage

The BNSY coordinator need to communicate on daily basis with RMN material coordinator so that any issue can be solve immediately.

Reference 2 - 1.19% Coverage

Person In-Charge (PIC) in Supply Chain / Procurement, Material Coordinator of SLEP and Material Handlers of Production Department must be aligned so that every PIC is aware of their respective responsibility and capable to do fast countermeasure to solve any issue arise.

<Internals\\Documents Review\\BNS Rationalisation Program\\BNS RP Task 2 Interim Report\\1 Introduction> - § 5 references coded [9.68% Coverage]

Reference 1 - 1.48% Coverage

'Zone' completion is a much more effective method to control works than System-by-System methodology during the installation stage.

Reference 2 - 1.58% Coverage

Work sequence is the prerequisite in scheduling to avoid interferences between different working teams, waiting time, loss time and reworks.

Reference 3 - 2.54% Coverage

For completing compartment mechanically, the schedule should Integrate Hull, Outfitting and Painting [IHOP] works. IHOP is the most advanced method in ship building and ship repairing to attain the most excellent performance.

Reference 4 - 1.16% Coverage

Work Execution Program (WEP) should be strictly followed to maintain IHOP Schedule by production units.

Reference 5 - 2.92% Coverage

'Dynamic monitoring and Daily control' is extremely important. It should be a routine for all production supervisors to update the actual progress, adjust time schedule and update manpower allocation whenever any deviations occur in order to keep to schedule.

<Internals\\Documents Review\\BNS Rationalisation Program\\BNS RP Task 2 Interim Report\\6 Discipline Manpower Schedule> - § 2 references coded [5.38% Coverage]

Reference 1 - 1.66% Coverage

Workforce can be formed and deployed for main production flow lines according to Standard work or DWP.

Reference 2 - 3.72% Coverage

Most of works in By-pass lines can be carried out by the same working teams in main line doing overtime work on weekday and/or on Saturday/Sunday. If not, the detached workforce has to be mobilized depending on the size of works.

<Internals\\Documents Review\\BNS Rationalisation Program\\BNS RP Task 2 Interim Report\\8 Dynamic Monitoring and Control> - § 2 references coded [2.21% Coverage]

Reference 1 - 1.65% Coverage

Red tag been introduce to declare and highlight the problem and issue arising once any discipline unable to complete their task according to WEP, elaborated from IHOP Schedule due to any other constraint and affected factor such as spare outstanding, incomplete sequence job before and etc.

Reference 2 - 0.57% Coverage

ZM during his progress monitoring on-board will observe the issue on red tag and do problem shooting

<Internals\\Documents Review\\BNS Rationalisation Program\\BNS RP Task 2 Interim Report\\9 Capacity Building Up> - § 4 references coded [2.46% Coverage]

Reference 1 - 0.46% Coverage

Fabrication Sequence Diagram (FSD), Detailed Work Procedure (DWP)

Reference 2 - 0.99% Coverage

Early and continued interaction between Designer and Production engineer is critical for successful integration of their different concerns.

Reference 3 - 0.62% Coverage

Establish close communication channel to integrate planning/production data into design.

Reference 4 - 0.39% Coverage

Organize 'Production drawing team' as soon as possible.

<Internals\\Documents Review\\BNS Rationalisation Program\\BNS RP Task 3 Final Report\\2 Delivery of KD LEKIR_Week 44> - § 1 reference coded [0.36% Coverage]

Reference 1 - 0.36% Coverage

the punch list should be completed in a relatively short period of time and good communication between the project team and subcon should remain ongoing.

<Internals\\Documents Review\\BNS Rationalisation Program\\BNS RP Task 3 Final Report\\3 Intensive Monitoring & Control> - § 1 reference coded [0.41% Coverage]

Reference 1 - 0.41% Coverage

PM has to engaged new sub-contractor to assist on the last minutes painting job and instruct existing sub-contractor to add man power.

<Internals\\Documents Review\\BNS Rationalisation Program\\BNS RP Task 3 Final Report\\6 Roles and Responsibility of Dept> - § 2 references coded [0.70% Coverage]

Reference 1 - 0.45% Coverage

Designer and production engineers need to closely interact each other to set up hull construction, outfitting and painting for successful integration of different discipline.

Reference 2 - 0.25% Coverage

Designer and production engineer must have a good understanding of the entire shipbuilding system.

<Internals\\Documents Review\\BNS Rationalisation Program\\BNS RP Task 3 Interim Report\\2 Current Status of KD LEKIR_Week 35> - § 5 references coded [1.49% Coverage]

Reference 1 - 0.15% Coverage

BNS purchased several RMN outstanding spares to expedite work.

Reference 2 - 0.15% Coverage

Sub-contractor work overnight after ship back from Sea Trial.

Reference 3 - 0.55% Coverage

MMAM urged BNS for perfect completion such as: i. Finish-off remaining fitting work. ii. Remove unnecessary fitting and cable.
iii. Put-up tally and cable marking. iv. Painting of panel. v. Finish-off remaining touch up work.

Reference 4 - 0.16% Coverage

BNS engaged new sub-contractor (labor supply) for cosmetic painting.

Reference 5 - 0.48% Coverage

Sea Trial for IWS run smoothly with several minor defect and handled correctly by OEM. OEM experienced the same issue when handling the same system In KD KASTURI, thus the problem is solved easily.

<Internals\\Documents Review\\BNS Rationalisation Program\\BNS RP Task 3 Interim Report\\5 Spares Management> - § 3 references coded [3.30% Coverage]

Reference 1 - 0.23% Coverage

Reducing the overall costs of materials

Reference 2 - 1.86% Coverage

ii. Better handling of materials iii. Materials will be on site when needed and in quantities required iv. Improvement in labor productivity v. Improvement in project schedule vi. Better relation with suppliers vii. Reduce of surplus materials viii. Reduce storage of materials on site ix. Labor savings x. Stock reduction

Reference 3 - 1.21% Coverage

Close monitoring and controlling able to tracks, reviews and revises spare material acquisition activities in order to ensure the item creates the deliverables in accordance with the overall project objectives.

<Internals\\Documents Review\\BNS Rationalisation Program\\BNS RP Task 4 Project Final Report\\Chapter 3_Planning & Control Methodolgy & Approach> - § 1 reference coded [0.18% Coverage]

Reference 1 - 0.18% Coverage

a complexity of planning with respect to Original Equipment Manufacturer (OEM) availability is needed.

<Internals\\Documents Review\\BNS Rationalisation Program\\BNS RP Task 4 Project Final Report\\Chapter 5_Spare Management> - § 2 references coded [1.76% Coverage]

Reference 1 - 0.58% Coverage

daily accounting of material supply progress need to be practiced where special attention need to be given for RMN supplied materials

Reference 2 - 1.18% Coverage

Person In-Charge (PIC) in Supply Chain / Procurement, Material Coordinator of SLEP and Material Handlers of Production Department must be aligned so that every PIC is aware of their respective responsibility and capable to do fast countermeasure to solve any issue arise.

<Internals\\Documents Review\\BNS Rationalisation Program\\BNS RP Task 4 Project Final Report\\Chapter 6_Summary> - § 9 references coded [5.89% Coverage]

Reference 1 - 0.75% Coverage

All workers should think on positive side by sharing their problem. Any comment from Top Management should motivated them to be better.

Reference 2 - 0.68% Coverage

Ship construction required involvement from many different discipline. Each and every system are related to each other's.

Reference 3 - 0.73% Coverage

BNS need to organize this multiple discipline very carefully and structured through morning assembly, exercise and WEP discussion.

Reference 4 - 0.58% Coverage

Through DWP, we can get actual work volume and man power requirement based on exact capabilities of BNS.

Reference 5 - 0.64% Coverage

BNS should consider to train frontline supervisor to be more outstanding, stand in front and lead the working team.

Reference 6 - 0.47% Coverage

Sometimes BNS need to consider and focus on small work to make other's work continue.

Reference 7 - 0.54% Coverage

By setting up a clear and simply instruction, all workers can easily understand their work daily.

Reference 8 - 0.60% Coverage

By produce correct information and drawing, working team can did their work faster and in a better quality.

Reference 9 - 0.89% Coverage

Successful of any project in BNS are much depending to them thus BNS should thing the best solution to develop sub-contractor capabilities through VDP platform.

<Internals\\Documents Review\\BNS Rationalisation Program\\BSN RP Task 1 Report V2.1> - § 8 references coded [1.08% Coverage]

Reference 1 - 0.17% Coverage

If the Master schedule is developed in more correspondence with the actual status, it would be easier for it to be adhered to by production.

Reference 2 - 0.12% Coverage

Need for more skilled expertise and experience in integrated ship designing for ship building.

Reference 3 - 0.16% Coverage

Need for more regular communication and coordination with production personnel on site to develop production oriented drawings.

Reference 4 - 0.11% Coverage

a very dynamic and effective system is required to control and monitor works for completion.

Reference 5 - 0.15% Coverage

MMAM proposed a Production-oriented Zone as the methodology to control works at the final stage of on-board installation

Reference 6 - 0.19% Coverage

The collaboration between key department personnel for each zone creates a conducive working environment for SLEP and REFIT works to be combined together.

Reference 7 - 0.09% Coverage

A process to coordinate work interfaces in each zone to avoid interferences.

Reference 8 - 0.08% Coverage

reliable sets of data need to be generated by all production units.

<Internals\\Documents Review\\LCS Report\\Annexures to LCS ISSUES & LESSON LEARNT> - § 18 references coded [10.65% Coverage]

Reference 1 - 0.15% Coverage

Engagement of new subcontractor.

Reference 2 - 0.23% Coverage

Plan will be readjusted in the revised planning

Reference 3 - 0.30% Coverage

schedule misalignment being resolved with L3;increased manpower

Reference 4 - 0.11% Coverage
to resolve TI document

Reference 5 - 1.14% Coverage

proposed staffing of the PMT must contain the right mix of staffs with correct roles and responsibilities

PA - proposed effectiveness of the PMT can only be realized with a corresponding competent and adequately staffed Production team.

Reference 6 - 0.29% Coverage

proposed the formation of Production Planning organization.

Reference 7 - 0.40% Coverage

Formation of Production Planning is necessary to monitor 4th and 5th level schedule

Reference 8 - 1.60% Coverage

proposed the need for spreading out payments to reduce cash flow risk must be more critically assessed when undertaking new projects.
PA - propose a rigorous analysis of the activities in any milestones.
PA - proposed the pros and cons of the foreign currency portion of the Contract Price to be assessed for other similar project.

Reference 9 - 0.38% Coverage

proposed to execute a detailed audit during the subcontractor selection process.

Reference 10 - 1.02% Coverage

proposed to ensure the competency and quantity of shipyard personnel to manage and overseer the construction onset of a project.
PA - proposed to have the same subcontractor executing the same work on all ships.

Reference 11 - 0.98% Coverage

proposed to guarantee the availability, understanding and enforcement of quality procedures, processes and instructions.
PA - proposed to have a careful review and very detailed planning for construction.

Reference 12 - 0.48% Coverage

PA - proposed the inclusion of a Material Controller in PMT.
PA - standardized reports and templates

Reference 13 - 0.48% Coverage

PA - proposed the inclusion of a Material Controller in PMT.
PA - standardized reports and templates

Reference 14 - 0.92% Coverage

PA - proposed to increased capability and experience of BN Shipyard in design.
PA - proposed to address the issue for the lack of human resources with the required competency and experience.

Reference 15 - 0.47% Coverage

proposed to develop the yard standard for material and the adoption of a single material reference.

Reference 16 - 0.28% Coverage

SCAMS manpower will be addressed with ALAM top management.

Reference 17 - 0.24% Coverage

daily coordination discussion between contractors.

Reference 18 - 1.17% Coverage

PA - proposed to audit subcontractor capability prior to any work award.
PA - proposed to set up a Contract Administration Section.
PA - proposed to increase the pool of subcontractor.
PA - proposed to make payment to subcontractors in time.

<Internals\\Documents Review\\NCR\\NCR table_others> - § 1 reference coded [1.00% Coverage]

Reference 1 - 1.00% Coverage

1. Head of Workshops have been reminded constantly to work closely and communicate efficiently and effectively among themselves. 2. Close coordination of works sequnce. 3. Accomodation Ladders and Bucket Lift have been completed with inspection done and accepted.

<Internals\\Documents Review\\Preparation for LCS> - § 1 reference coded [2.23% Coverage]

Reference 1 - 2.23% Coverage

the French has specifically told us what to do by recommending **1) improvement on existing process and 2) implement new processes**.

<Internals\\Documents Review\\Source Data 3.6.16\\KD Pahang Material Outstanding final 050416> - § 1 reference coded [0.32% Coverage]

Reference 1 - 0.32% Coverage

The uncertainty that is faced in identifying the material can be resolved from the start with Engineering involvement.

<Internals\\Documents Review\\SWC\\BoD No. 02.2015_ 06 Jul 2015> - § 2 references coded [2.36% Coverage]

Reference 1 - 0.71% Coverage

a. Resource allocation – daily monitoring of manpower allocation.

Reference 2 - 1.65% Coverage

b. Restoration program – Development of master schedule, material management and procurement plan, progress reporting and presentation to the RMN.

<Internals\\Interview Transcript-Eng\\1E&E-HOU-Azmi> - § 2 references coded [3.61% Coverage]

Reference 1 - 1.93% Coverage

Pihak Jabatan Kejuruteraan terpaksa menggunakan apa sahaja cara bagi mendapatkan informasi yang diperlukan seperti membuat carian di jabatan dan unit BN Shipyard dan juga TLDM, menghubungi OEM atau menggunakan kemudahan internet. Jika informasi masih gagal diperolehi kebiasaannya tindakan penggantian baru terpaksa dilakukan.

Reference 2 - 1.68% Coverage

PDF memudahkan kerja-kerja pembaikan kapal secara keseluruhannya dan dapat mengurangkan konflik. Ini kerana PDF menyediakan informasi untuk Material Take-Off (MTO) dapat dilakukan, boleh dijadikan panduan untuk kerja-kerja bengkel dan panduan lengkap kerja-kerja pemasangan di kapal.

<Internals\\Interview Transcript-Eng\\2Hull -HOU-Shahrin> - § 1 reference coded [0.92% Coverage]

Reference 1 - 0.92% Coverage

Yes, I believe that Production Friendly Drawing can resolve the conflict.

<Internals\\Interview Transcript-Eng\\2Hull Outfit-Alif> - § 1 reference coded [1.74% Coverage]

Reference 1 - 1.74% Coverage

PDF memudahkan kerja-kerja pembaikan kapal secara keseluruhannya dan dapat mengurangkan konflik. Ini kerana PDF menyediakan informasi untuk Material Take-Off

(MTO) dapat dilakukan, boleh dijadikan panduan untuk kerja-kerja bengkel dan panduan lengkap kerja-kerja pemasangan di kapal.

<Internals\\Literature Articles\\Conflict\\3 Lessons for succesfull transformational change> - § 1 reference coded [0.21% Coverage]

Reference 1 - 0.21% Coverage

I suggest that your discussions of what to change is balanced with discussions on how the change will be managed

<Internals\\Literature Articles\\Conflict\\A Decision Support Model for Contractor Selection in a Government Procurement Supply Chain Evidence from emerging market> - § 1 reference coded [0.27% Coverage]

Reference 1 - 0.27% Coverage

Define an unstructured problem and determine the overall goal. The overall goal is to select the
best contractor.

<Internals\\Literature Articles\\Conflict\\A dynamic e-Reporting system for contractor's performance appraisal> - § 1 reference coded [0.16% Coverage]

Reference 1 - 0.16% Coverage

score or ranking to reflect his current overall performance level and recent trend in pursuing performance improvement.

<Internals\\Literature Articles\\Conflict\\A Knowledge-Based System For Construction Subcontractor Appraisal> - § 4 references coded [1.73% Coverage]

Reference 1 - 0.52% Coverage

Objectives and expectations definition" (component 1) establishes the client's expectation and strategic
objectives that best reflect the distinctive requirements of the client, project and external environment.

Reference 2 - 0.48% Coverage

"Criteria and performance indicators formulation" (component 2) aims to formulate a list of performance
evaluation criteria and performance indicator based on the type and size of subcontractor.

Reference 3 - 0.42% Coverage

Appraisal" (component 3) compares the actual quality of subcontractor's works against the performance
indicator and computes a performance rating for each subcontractor.

Reference 4 - 0.32% Coverage

"Feedback and appeal" (component 4) provides a means for participants to express their opinions regarding

the model's reliability

<Internals\\Literature Articles\\Conflict\\A Research on the Relationship between Top Managers' Intelligence and Their Ideas about Business Process Reengineering Consideration of Emotionality and Spirituality> - § 1 reference coded [0.07% Coverage]

Reference 1 - 0.07% Coverage

When solving a problem, I inspect every possibility, and then decide the best.

<Internals\\Literature Articles\\Conflict\\A Review of Enterprise Resource Planning Implementation Issues> - § 2 references coded [0.48% Coverage]

Reference 1 - 0.08% Coverage

requires people to relearn new skills and adapt to new technology

Reference 2 - 0.40% Coverage

reengineering and customization, user training and cross-functional team to take care of the problem that might arise in different areas, vision and planning, consultant selection and relationship, effective communication plan, ERP system selection, ERP system integration and post-implementation evaluation measures.

<Internals\\Literature Articles\\Conflict\\A Theory of Enterprise Transformation> - § 1 reference coded [0.08% Coverage]

Reference 1 - 0.08% Coverage

Managers' roles as leaders, rather than problem
solvers and decision-makers, are also central to transformation

<Internals\\Literature Articles\\Conflict\\Aalst - 2015 - Business process simulation survival guide> - § 3 references coded [0.15% Coverage]

Reference 1 - 0.03% Coverage

After defining the problem, the next phase is modeling.

Reference 2 - 0.05% Coverage

Simulation packages that fit the problem domain merely require a correct parameterization.

Reference 3 - 0.07% Coverage

New insights may even lead to
10 Wil M.P. van der Aalst
adjusting the problem definition and/or the conceptual model.

<Internals\\Literature Articles\\Conflict\\abeb802a700445bdbab82dcc15c71714cf77> - § 2 references coded [0.48% Coverage]

Reference 1 - 0.13% Coverage

Departing from incremental and piecemeal approaches such as the problem solving process, business process reengineering (BPR) emerged as a radical innovation and change program with a multidisciplinary nature

Reference 2 - 0.35% Coverage

First, the problem situation in an organization is conceptualized in order to structure the problem situation. Second, using empirical data, a descriptive and validated empirical model is built that can be used to analyze and diagnose the problem situation. Third, the problem diagnosis informs the identification of alternative solutions that are analyzed using prescriptive empirical (simulation) models. Fourth, based on the analysis of alternative solutions, a particular (set of) solution(s) is selected. Finally, the selected (set of) solution(s) is implemented.

<Internals\\Literature Articles\\Conflict\\Action Learning and Action Research(ALAR) A Methodological Integration in an Inter-Organizational Setting> - § 2 references coded [0.55% Coverage]

Reference 1 - 0.29% Coverage

The group—comprises a typical number of six to eight members who care about the problem, know something about it and have the power to implement solutions

Reference 2 - 0.26% Coverage

through the monthly meetings facilitators gave participants time to plan and problem-solve as well as to present their progress to date.

<Internals\\Literature Articles\\Conflict\\Action Research A New Look> - § 1 reference coded [0.09% Coverage]

Reference 1 - 0.09% Coverage

They believed that professional educators should become involved in community problem-solving.

<Internals\\Literature Articles\\Conflict\\Action research as culture change tool> - § 1 reference coded [0.17% Coverage]

Reference 1 - 0.17% Coverage

Initially an exploratory stance is adopted, where an understanding of a problem is developed and plans are made for some form of interventionary strategy

<Internals\\Literature Articles\\Conflict\\Action Research for Operations Management(2)> - § 1 reference coded [0.06% Coverage]

Reference 1 - 0.06% Coverage

AR always involves two goals: solve a problem and contribute to science.

<Internals\\Literature Articles\\Conflict\\Action Research Reflections the wanganui adult litera cyand employment project> - § 1 reference coded [0.04% Coverage]

Reference 1 - 0.04% Coverage

all professional educators should become involved in community problem-solving.

<Internals\\Literature Articles\\Conflict\\Action Research Theory Paper Review Origins, Vigor and Applications> - § 2 references coded [0.27% Coverage]

Reference 1 - 0.18% Coverage

it's the practitioner's who need to play the major role in problem identification, data gathering and implementing desirable solutions while serving as experts in technical matters such as engineering, technology and cost accounting.

Reference 2 - 0.09% Coverage

A form of Learning by doing
focusing on
resolving real problems on a timely manner (problem-based learning).

<Internals\\Literature Articles\\Conflict\\Addressing the contractor selection problem using and evidential reasoning approach> - § 3 references coded [0.27% Coverage]

Reference 1 - 0.11% Coverage

This DSS employed inductive learning and neural networks to extract the problem solving knowledge.

Reference 2 - 0.11% Coverage

should understand and have a clear picture of the whole problem before they start trying to solve it.

Reference 3 - 0.06% Coverage

display a decision problem in a hierarchical structure

<Internals\\Literature Articles\\Conflict\\after> - § 1 reference coded [0.09% Coverage]

Reference 1 - 0.09% Coverage

Framing an issue as a problem may influence who gets involved in problem resolution.

<Internals\\Literature Articles\\Conflict\\Aguilar-Saven - 2004 - Business process modelling Review and framework> - § 1 reference coded [0.12% Coverage]

Reference 1 - 0.12% Coverage

It is a graphical representation in which symbols are used to represent such things as operations, data, flowdirection, and equipment, for the definition, analysis, or solution of a problem.

<Internals\\Literature Articles\\Conflict\\Ahmed, Azhar - 2002 - Construction delays in Florida An empirical study> - § 1 reference coded [0.08% Coverage]

Reference 1 - 0.08% Coverage

The concepts of “liquidated damages” and “acceleration” are often opposite approaches in solving the delay problem

<Internals\\Literature Articles\\Conflict\\Aksoy, Sucky, Öztürk - 2014 - Dynamic Strategic Supplier Selection System With Fuzzy Logic> - § 1 reference coded [0.64% Coverage]

Reference 1 - 0.64% Coverage

although the problem of strategic supplier selection is not new, quite a few researchers treat the strategic supplier selection issue as an optimization problem, which requires the formulation of an objective function.

<Internals\\Literature Articles\\Conflict\\Ali, Al-Sulaihi, Al-Gahtani - 2013 - Indicators for measuring performance of building construction companies in Kingdom of Saudi Arabia> - § 1 reference coded [0.11% Coverage]

Reference 1 - 0.11% Coverage

managers need current, up-to-date, and mostly nonfinancial information to be able to take better decisions

<Internals\\Literature Articles\\Conflict\\Al-Mashari, Irani, Zairi - 2001 - Business process reengineering a survey of international experience> - § 2 references coded [0.21% Coverage]

Reference 1 - 0.09% Coverage

The next most used techniques were ``Process capture and modelling", followed by ``Problem solving and diagnosis".

Reference 2 - 0.12% Coverage

While the European respondents rank ``Project management" techniques highest, the US organisations rank ``Problem solving and diagnosis" techniques highest.

<Internals\\Literature Articles\\Conflict\\Altrichter et al. - 2013 - Teachers investigate their work An introduction to action research across the professions> - § 1 reference coded [0.01% Coverage]

Reference 1 - 0.01% Coverage

their effects and side-effects need to be monitored in order to learn from experience and further improve the action strategies.

<Internals\\Literature Articles\\Conflict\\An Analysis of the Selection of Project Contractor in the Construction Management Process> - § 1 reference coded [0.16% Coverage]

Reference 1 - 0.16% Coverage

This problem can be corrected with an update of the qualification data during the bid.

<Internals\\Literature Articles\\Conflict\\An Approach of Contractor Selection By Analytical Heirarchy Process> - § 1 reference coded [0.54% Coverage]

Reference 1 - 0.54% Coverage

Golden (1989), described AHP as analytical by using members, hierarchy by structuring the decision problem into levels and process-oriented because its step- by-step approach.

<Internals\\Literature Articles\\Conflict\\An Examination of the role of organizational enablers in business process reengineering and the impact of Information Technology> - § 1 reference coded [0.06% Coverage]

Reference 1 - 0.06% Coverage

outside consultants can be used to provide expertise to BPR projects.

<Internals\\Literature Articles\\Conflict\\ANALYSIS OF CRITERIA FOR CONTRACTORS' QUALIFICATION EVALUATION> - § 1 reference coded [0.27% Coverage]

Reference 1 - 0.27% Coverage

solve the problem of prequalification and final contractor selection by applying the analytical hierarchy process (AHP) that allows the consideration of multiple criteria.

<Internals\\Literature Articles\\Conflict\\Analysis of factors critical to construction project success in Malaysia> - § 1 reference coded [0.16% Coverage]

Reference 1 - 0.16% Coverage

re-exploring the factors essential to the success of the construction project
will help in gaining a better insight towards the industry, especially on the human-related issue.

<Internals\\Literature Articles\\Conflict\\Anjard - 1996 - Applying re-engineering> - § 1 reference coded [0.23% Coverage]

Reference 1 - 0.23% Coverage

Re-engineering is not a panacea for every problem within an organization. There are risks but there are great rewards.

<Internals\\Literature Articles\\Conflict\\Ansari et al. - 2011 - Application of Six-Sigma in finance a case study(4)> - § 1 reference coded [0.16% Coverage]

Reference 1 - 0.16% Coverage

Understanding customer (internal and external) requirements is the key to achieving the project's goal.

<Internals\\Literature Articles\\Conflict\\Appelbaum et al. - 2015 - Organizational outcomes of leadership style and resistance to change (Part Two)> - § 1 reference coded [0.26% Coverage]

Reference 1 - 0.26% Coverage

In a transformational change, the workforce must adapt to multiple variations in their work environment and firms must be able to change by solving problems as they arise and by learning from the problem-solution process

<Internals\\Literature Articles\\Conflict\\Application of the graph theory and matrix methods to contractor ranking> - § 1 reference coded [0.24% Coverage]

Reference 1 - 0.24% Coverage

The usage of a permanent concept helps in better appreciation of the criteria and it characterizes the considered selection problem as it contains all possible structural components of the criteria and their relative importance

<Internals\\Literature Articles\\Conflict\\Applying Lewin's Change Management Theory to the Implementation of Bar-Coded Medication Administration> - § 1 reference coded [0.50% Coverage]

Reference 1 - 0.50% Coverage

Unfreezing involves identifying key players that will be affected by the change and gathering them
together to communicate ideas and create lists of all driving and static forces that will affect the project.

<Internals\\Literature Articles\\Conflict\\AR Pilot thesis - Dr Azman> - § 1 reference coded [0.01% Coverage]

Reference 1 - 0.01% Coverage

Each AR cycle consists of the five stages of diagnosis, planning, action, evaluation and learning.

<Internals\\Literature Articles\\Conflict\\Argentinian Journal(AJAL)> - § 6 references coded [0.26% Coverage]

Reference 1 - 0.04% Coverage

Modelling: an expert carries out a task so that the learners can observe and build a conceptual model of the processes required to accomplish a task.

Reference 2 - 0.06% Coverage

Coaching: involves an expert observing a novice whilst they carry out a task, offering hints, feedback, modelling, reminders and new tasks aimed at bringing their performance closer to the expert performance.

Reference 3 - 0.03% Coverage

Scaffolding: refers to the support provided to help the novice carry out a task, taking the form of suggestion or help.

Reference 4 - 0.04% Coverage

Articulation: includes any method of getting the novice to articulate their knowledge, reasoning or problem-solving in a particular domain.

Reference 5 - 0.05% Coverage

Reflection: enables the novices to compare their own problem-solving processes with those of an expert, another novice and, ultimately, an
7 M.R. Moya internal cognitive model of expertise.

Reference 6 - 0.04% Coverage

Exploration: involves pushing novices into a mode of problem-solving on their own. Exploration is the natural culmination of the fading of support from the expert.

<Internals\\Literature Articles\\Conflict\\Ashayeri, Keij, Bröker - 1998 - Read at DeepDyve »Global business process re-engineering a system dynamics-based approach> - § 1 reference coded [0.19% Coverage]

Reference 1 - 0.19% Coverage

the ANP should only be used in case of a general approach of complex worldwide change. The problem can then be reduced significantly.

<Internals\\Literature Articles\\Conflict\\Attitudes of Midle Managers to Quality-Based Organisational Change> - § 1 reference coded [0.20% Coverage]

Reference 1 - 0.20% Coverage

The way in which organisation 1 dealt with the problem of middle management resistance was by empowering middle managers to decide whether or not the programme would continue.

<Internals\\Literature Articles\\Conflict\\Authenticity as first person practice An Exploration based on Bernard Lonergan> - § 1 reference coded [0.04% Coverage]

Reference 1 - 0.04% Coverage

experience, understanding, and judgement.

<Internals\\Literature Articles\\Conflict\\Aydinli, Brinkkemper, Ravesteyn - 2009 - Business Process Improvement in Organizational Design of e-Government Services(3)> - § 5 references coded [0.64% Coverage]

Reference 1 - 0.17% Coverage

Optimization is the use of specific techniques to determine the most cost effective and efficient solution to a problem or a process.

Reference 2 - 0.08% Coverage

Avoid redundant effort by using knowledge management systems.

Reference 3 - 0.12% Coverage

Make it easy for employees to find the necessary information and resources to do their jobs.

Reference 4 - 0.09% Coverage

Communicate important information widely and quickly in the organization.

Reference 5 - 0.17% Coverage

Capture key information on all work performed so that everyone will know what others have done and who to contact for further details.

<Internals\\Literature Articles\\Conflict\\Ayrancı, Ayrancı - 2015 - A research on the relationship between top managers' intelligence and their ideas about business process reeng> - § 1 reference coded [0.06% Coverage]

Reference 1 - 0.06% Coverage

When solving a problem, I inspect every possibility, and then decide the best

<Internals\\Literature Articles\\Conflict\\Aziz - 2013 - Optimizing strategy for repetitive construction projects within multi-mode resources> - § 1 reference coded [0.18% Coverage]

Reference 1 - 0.18% Coverage

Ammar [39] developed a mathematical optimization model which links the Critical Path Method, ‘‘CPM’’ with least cost optimization, mathematical programming, and DCF techniques in order to optimize the traditional time cost trade off problem.

<Internals\\Literature Articles\\Conflict\\Bartolo, Smith - 1993 - Interdisciplinary work and the information search process A comparison of manual and online searching> - § 1 reference coded [0.26% Coverage]

Reference 1 - 0.26% Coverage

"information search process (ISP) is the user's constructive activity of finding meaning from information in order to extend his or her state of knowledge on a particular topic or problem.

<Internals\\Literature Articles\\Conflict\\Behavioral Aspects of ERP Implementation A Concepcual Review> - § 1 reference coded [0.17% Coverage]

Reference 1 - 0.17% Coverage

The model asserts that if these four components are taken as a whole while implementing ERP, the end users of the software won’t face any significant problem.

<Internals\\Literature Articles\\Conflict\\Beyond the Perceived of Employer Tuition Reimbursement Program, A Qualitative Inquiry into Employee Graduate and Postgraduate Education> - § 1 reference coded [0.01% Coverage]

Reference 1 - 0.01% Coverage

Shaw (2002) opined action research is a cooperative research effort engaging people who are actively involved in a problem to provide valid and descriptive information to solve a problem or bring about change.

<Internals\\Literature Articles\\Conflict\\Boyer, Lewis - 2002 - Competitive Priorities Investigating the Need for Trade-Offs in Operations Strategy> - § 1 reference coded [0.36% Coverage]

Reference 1 - 0.36% Coverage

According to Boyer and McDermott (1999), when plants lack a high degree of strategic consensus, researchers should avoid placing too much emphasis on any respondent's ratings. To address this problem, we take an average of the manager and operator constructs for each plant on each priority for all further analysis.

<Internals\\Literature Articles\\Conflict\\Business Process Modelling, Simulation and Reengineering Call Centers> - § 3 references coded [0.56% Coverage]

Reference 1 - 0.30% Coverage

Data mining techniques (Paprzycki et al., 2004) (such as linear neural networks, multi-layered perceptions and neural network approach) can be applied to the problem of predicting the quality of service in call centres.

Reference 2 - 0.15% Coverage

Static design problem determines staffing levels according to which agents are assigned to work schedules.

Reference 3 - 0.12% Coverage

Dynamic control problem resolves the real-time assignment of incoming calls to agents.

<Internals\\Literature Articles\\Conflict\\Business process portfolio selection in re-engineering projects> - § 1 reference coded [0.17% Coverage]

Reference 1 - 0.17% Coverage

valuates the risk and return of each reengineering
scenario aiming at selecting a number of scenarios by adopting a portfolio selection problem (PSP) in choosing high priority and suitable scenarios that reduce and control the imposed risk of reengineering project.

<Internals\\Literature Articles\\Conflict\\Business Process Reengineering> - § 1 reference coded [0.16% Coverage]

Reference 1 - 0.16% Coverage

" the fundamental rethinking and radical redesign of the business processes to achieve dramatic improvements in critical, contemporary measures of performance, such as cost, quality, service and speed"

<Internals\\Literature Articles\\Conflict\\Business Process Reengineering A Recent Review> - § 1 reference coded [0.11% Coverage]

Reference 1 - 0.11% Coverage

Current processes can be understood and documented by flowcharting and process mapping. As processes are documented, their interrelationships become clear and a map of the organization emerges.

<Internals\\Literature Articles\\Conflict\\Business Process Reengineering and Performance Improvement The Case of Chase Manhattan Banks> - § 1 reference coded [0.34% Coverage]

Reference 1 - 0.34% Coverage

senior management translates this business problem into process performance problems and opportunities. This allows the company to focus on fundamentally transforming the target process(es), thus improving business results and solving the problem.

<Internals\\Literature Articles\\Conflict\\Business process re-engineering projects in Finland An evaluation of change management in 21 large> - § 2 references coded [0.43% Coverage]

Reference 1 - 0.16% Coverage

Management must make a conscious decision whether a process is up to date or whether it needs to be re-designed.

Reference 2 - 0.28% Coverage

Process re-engineering as a project consisting of design and implementation phases. Once a re-engineering project has been completed, the reconstruction process enters the continuous improvement cycle

<Internals\\Literature Articles\\Conflict\\By - 2005 - Organisational change management A critical review> - § 1 reference coded [0.24% Coverage]

Reference 1 - 0.24% Coverage

Burnes (2004) refers to incremental change as when individual parts of an organisation deal increasingly and separately with one problem and one objective at a time.

<Internals\\Literature Articles\\Conflict\\Calhoun - 2008 - Action research for school improvement> - § 1 reference coded [0.40% Coverage]

Reference 1 - 0.40% Coverage

For 60 years, action research has been an avenue for creating professional learning communities whose members engage in problem solving and for attaining individual and collective goals.

<Internals\\Literature Articles\\Conflict\\Case Studies in Awarding the lowest Bid Price in Construction Projects> - § 1 reference coded [0.22% Coverage]

Reference 1 - 0.22% Coverage

Using a multi-criteria approach for evaluating contractors with respect to their economic and technological aspects, quality standards, past performance, and other tangible and intangible characteristics may help solving this problem

<Internals\\Literature Articles\\Conflict\\Case Study of a Participatory Action Research Process to Examine Burnout nd Generate Change Oriented Strtegies Among Workers in a Human> - § 1 reference coded [0.03% Coverage]

Reference 1 - 0.03% Coverage

explores how more sustainable results can be obtained when workers themselves design the interventions, and explores how participatory action research is uniquely suited to address problems in the workplace by putting the problem in the hands of those who own it.

<Internals\\Literature Articles\\Conflict\\Change management Theories and Methodologies> - § 8 references coded [0.92% Coverage]

Reference 1 - 0.11% Coverage

Ensure clear expression of the reasons for change and help the sponsor communicate.

Reference 2 - 0.10% Coverage

Plan the involvement and project activities for the change sponsor or agents.

Reference 3 - 0.09% Coverage

Plan how and when the changes will be communicated and delivered.

Reference 4 - 0.10% Coverage

Assess the impact of the changes on people and the organization's structure.

Reference 5 - 0.11% Coverage

Ensure that people involved and affected by the change understand the change process.

Reference 6 - 0.13% Coverage

Ensure those involved or affected have help and support during times of uncertainty or upheaval.

Reference 7 - 0.12% Coverage

Assess training needs driven by the change and plan when and how this will be implemented.

Reference 8 - 0.15% Coverage

Identify and agree on the success indicators for change, and ensure they are regularly measured and reported.

<Internals\\Literature Articles\\Conflict\\CIB6365> - § 4 references coded [1.51% Coverage]

Reference 1 - 0.22% Coverage

Good communication can minimize misunderstanding, develop good relationship and improve productivity of works.

Reference 2 - 0.52% Coverage

While contractors may be in a more suitable position to determine whether subcontractors have any “communication” problem which could affect the project outcomes, communication with the client and the project team is also needed in a multidisciplinary environment.

Reference 3 - 0.42% Coverage

Being the one who is responsible for the actual work, subcontractor are expected to keep the project participants informed of the potential problems and propose solutions to prevent any possible delays and reworks.

Reference 4 - 0.36% Coverage

In recent years, continuous and considerable effort has been made by the government and the industry to promote site safety via legislation, education and upgrading safety requirements.

<Internals\\Literature Articles\\Conflict\\Coghlan - 2013 - What will I do Toward an existential ethics for first person action research practice> - § 1 reference coded [0.12% Coverage]

Reference 1 - 0.12% Coverage

At this level we may ask what courses of action are open to us and we may review options, weight choices and decide.

<Internals\\Literature Articles\\Conflict\\Communicative empowerment of people with intellectual disability> - § 1 reference coded [0.12% Coverage]

Reference 1 - 0.12% Coverage

moving to an advice-giving mode, selecting a specifi c and mutually shared problem and what might be the appropriate response

<Internals\\Literature Articles\\Conflict\\Constructing empowerment People, Processes, Participation and Profit> - § 2 references coded [0.66% Coverage]

Reference 1 - 0.40% Coverage

First, training is conducted to prepare individuals and teams on the concept of empowerment and, arm them with teamwork principles and problem solving techniques.

Reference 2 - 0.26% Coverage

Second, employees are provided with continuous 'follow-up' training on their own business related skills.

<Internals\\Literature Articles\\Conflict\\Continous Improvement Partners (Executive Report)> - § 1 reference coded [0.14% Coverage]

Reference 1 - 0.14% Coverage

Learn by doing approach Balance between hard (tools and techniques) and soft (facilitation, communication, problem solving) skills
 Certification / nationally recognised qualification Centrally managed

<Internals\\Literature Articles\\Conflict\\CONTRACTOR SELECTION BY THE MOST ADVANTAGEOUS TENDERING APPROACH IN TAIWAN> - § 1 reference coded [0.59% Coverage]

Reference 1 - 0.59% Coverage

To counter this problem, an innovative tendering method, the Most Advantageous Tendering (MAT) approach, of the Government Procurement Law (Public Construction Commission, 1998) in Taiwan gives the procurement entity an alternative to select the best-qualified contractor without using the lowest cost tendering method.

<Internals\\Literature Articles\\Conflict\\Contribution of cost-benefit analysis to optimization of eco-design plants> - § 1 reference coded [0.44% Coverage]

Reference 1 - 0.44% Coverage

Reducing the environmental impact is a multicriterion problem because optimization
Journal of Engineering, Design and Technology Vol. 13 No. 2, 2015 pp. 334-346 ©Emerald Group Publishing Limited 1726-0531 DOI 10.1108/JEDT-02-2013-0010
must satisfy both production and environmental constraints.

<Internals\\Literature Articles\\Conflict\\Cost benefit analysis of re-engineering the business process in Nigerian banks> - § 5 references coded [1.30% Coverage]

Reference 1 - 0.21% Coverage

Increases effectiveness. As all employees are aware of the processes to which they belong, they have a greater sense of responsibility.

Reference 2 - 0.28% Coverage

Helps to improve efficiency. Proper management and control of all business processes reduces the time lag between different processes, which otherwise is quite high causing delays.

Reference 3 - 0.34% Coverage

Reduces cost. With the proper management of processes, improved efficiency and quick delivery of products to the buyers the overall product costs are reduced resulting in cost saving for the organization in the long run.

Reference 4 - 0.31% Coverage

As the time lag of product processing between different departments gets reduced due to the application of business process reengineering, there are more meaningful tasks to be performed by employees.

Reference 5 - 0.17% Coverage

Top Management support is very important. The senior management must be personally involved and lead the project.

<Internals\\Literature Articles\\Conflict\\Cost-Benefit_Effectiveness_Comparison Analyses _ The Abdul Latif Jameel Poverty Action Lab> - § 3 references coded [7.51% Coverage]

Reference 1 - 2.73% Coverage

A cost-benefit analysis quantifies the benefits and costs of an activity and puts them into the same metric (often by placing a monetary value on benefits).

Reference 2 - 3.19% Coverage

A cost-effectiveness analysis takes the impact of a program (e.g. percent reduction in the incidence of diarrhea), and divides that by the cost of the program, generating a statistic

Reference 3 - 1.59% Coverage

a cost comparison analysis will take multiple programs and compare them using the same unit

<Internals\\Literature Articles\\Conflict\\Critical Failure Factors in ERP Implementation> - § 1 reference coded [0.35% Coverage]

Reference 1 - 0.35% Coverage

In order to examine the causes of failure in the ERP implementation process, an "ERP System Life Cycle" (Markus et al., 2000) perspective was adopted, that can help to look at what goes on (e.g., problems experienced and attempts at problem resolution) at each phase of the experience cycle (Markus et al., 2000).

<Internals\\Literature Articles\\Conflict\\Darmani, Hanafizadeh - 2013 - Business process portfolio selection in re-engineering projects> - § 1 reference coded [0.07% Coverage]

Reference 1 - 0.07% Coverage

choosing high priority and suitable scenarios that reduce and control the imposed risk of reengineering project.

<Internals\\Literature Articles\\Conflict\\Debela - 2010 - Business process reengineering in Ethiopian public organizations the relationship between theory and practice> - § 1 reference coded [0.11% Coverage]

Reference 1 - 0.11% Coverage

managerial efficiency measures the speed that a manager accesses information and responds to a problem/opportunity in the form of instruction, report, decision, or answer.

<Internals\\Literature Articles\\Over the Wall\\astrategyforimprovingconstructionprojectssustainabilitythroughvaluemgtapproach> - § 1 reference coded [0.66% Coverage]

Reference 1 - 0.66% Coverage

a proactive, creative, problem-solving or problem-seeking service, which maximises the functional value of a project by managing its development from concept to use through structured, team-oriented exercises which make explicit, and appraise subsequent decisions, by reference to the value requirements of the clients.'

<Internals\\Literature Articles\\Over the Wall\\Automated Manufacturability Analysis-A Survey> - § 1 reference coded [0.07% Coverage]

Reference 1 - 0.07% Coverage

To expedite these time-consuming iterations, a number of software tools have been developed| allowing designers to analyze manufacturability during the design stage.

<Internals\\Literature Articles\\Over the Wall\\Design for Manufacturing of Composite Structures for Commercial Aircraft> - § 1 reference coded [0.30% Coverage]

Reference 1 - 0.30% Coverage

Many of the benchmarked companies have a group that is used as a link between the design and production departments in order to handle and prioritise the different demands on the product.

Framework Matrices - Causes of Conflict					
	A : Causes of Conflict	B : Age	C : Educational Level	D : Poor Communication	E : Poor Cooperation
1 : 1 Introduction	during on-board installation work, there could be more than one task that is to be executed at the same time within the same compartment.				
2 : 1E&E-HOU-Azmi	*Konflik berlaku apabila berurusan mengenai production drawing disebabkan kebiasaan kerja di Jabatan Pengeluaran.* *NGPV dibina oleh BN Shipyard dan semua lukisan kejuruteraan lengkap ada dalam simpanan manakala kapal-kapal lain dibina di luar Negara dan lukisan kejuruteraan lengkap disimpan oleh syarikat pembuat kapal berkenaan. Cabaran mendapatkan informasi yang dimaksudkan adalah dari segi spesifikasi teknikal peralatan kapal. Cabaran ini menjadi lebih getir jika kapal semakin berusia dan kebanyakan dokumen dan lukisan kejuruteraan bukan sahja tidak lengkap tetapi juga banyak yang telah using dan hilang.* *Perbezaan umur sememangnya mempunyai impact terhadap level konflik. Kebanyakan staf Jabatan Kejuruteraan adalah muda berbanding staf Jabatan Pengeluaran.* *Jabatan Pengeluaran lebih melihat kepada pengalaman manakala Jabatan Kejuruteraan melihat kepada aspek teori secara profesional.* *Masalah lemah komunikasi sememangnya ada berlaku menyebabkan proposal teknikal dan lukisan kejuruteraan tidak dipersetujui dan terpaksa dibuat pindaan.*				
3 : 1Working File for Thesis		Perbezaan umur sememangnya mempunyai impact terhadap level konflik. Kebanyakan staf Jabatan Kejuruteraan adalah muda berbanding staf Jabatan Pengeluaran. Oleh itu staf Jabatan Pengeluaran sering skeptikal terhadap hasil Production Friendly Drawing yang dikeluarkan oleh staf Jabatan Perbezaan umur sememangnya mempunyai Perbezaan umur sememangnya mempunyai Perbezaan umur sememangnya mempunyai impact terhadap level konflik.	Tahap Pendidikan mempunyai kesan Tahap Pendidikan mempunyai kesan terhadap tahap konflik kerana keduadua jabatan melihat sesuatu perkara secara berbeza. Jabatan Pengeluaran lebih melihat kepada pengalaman manakala Jabatan Kejuruteraan melihat kepada aspek teori Tahap Pendidikan mempunyai kesan terhadap education level sometime Educational level is also has an impact on the conflict between two	Masalah lemah komunikasi sememangnya ada berlaku Masalah lemah komunikasi Before the transformation program and at the beginning of transformation program, most of the staffs like to works in a silo. They don't share the problems openly especially with other departments. So, of course they will not get all the information they want because the information will be coming from many parties/departments.	Actually we lack of cooperation and communication between these two departments. We must have to give and take attitude. Production staffs have more experience and lest knowledge of theory whilst Engineering staffs have more theory and less experience. So, if they can compromise then they can complement each other
5 : 2 Current Status of KD LEKIR (2)	Critical problem: Shortage of Manpower				
8 : 2Hull -HOU-Shahrin	*Conflict happens when Production Team does not follow 100% drawing that has been passed to them.* *if Engineering Team gives a new drawing, Production Team failed to follow the new one and still follow the old drawing.*				
9 : 2Hull Outfit-Alif	*Jabatan Pengeluaran melaksanakan kerja-kerja merekan menggunakan sampel, lukisan tangan, gambar dan pengalaman.* *Jabatan Kejuruteraan mula menghantar Production Drawing untuk digunakan bagi menggantikan kaedah kebiasaan mereka bekerja, konflik berlaku dan kebanyakan staf Pengeluaran merasa keberatan oleh beberapa sebab.* *Konflik meningkat apabila syarikat mula mengambil Konsultan dari Korea Utara dan mereka memperkenalkan PFD untuk dilaksanakan.* *Perbezaan umur sememangnya mempunyai impact terhadap level konflik.* *Tahap Pendidikan mempunyai kesan terhadap tahap konflik kerana kedua-dua jabatan melihat sesuatu perkara secara berbeza.*				
10 : 2Hull Outfit-Hizam	*Jabatan Pengeluaran melaksanakan kerja-kerja merekan menggunakan sampel, lukisan tangan, gambar dan pengalaman.*				
11 : 3 Intensive Monitoring & Control	Each of the works and jobs that need to be done is related to each other. Without the spares, installation is impossible, if not installed finishing cannot be done, last touch is painting.				
15 : 5 Spares Management	separation of design and construction, lack of coordination and integration between various functional disciplines, poor communication, etc.				
18 : 7 Spares Management	only a few individuals have knowledge in spare parts inventory management which is not enough to execute widespread improvement.				
19 : 7 Work Execution Program (WEP)	formation of group is too big and difficult to have close communication with all workers. This factor will result to lack of information delivery.				
27 : A Fuzzy Neural Network Approach for Contractor Prequalification	Contractor prequalification can be regarded as a complicated two-group nonlinear classification problem, in which decisions are made according to the prequalification criteria, contractor's attributes and prequalifier's judgement.				
32 : Aalst - 2012 - Process mining manifesto	Event data may be incomplete. A common problem is that events do not explicitly point to process instances. Noise and incompleteness make process discovery a challenging problem.				
44 : Aflab, Ismail , Yasmin ,Tarmizi - 2013 - Web Based Risk Assessment Technique For Time And Cost Overrun (WRATTCO) A Framework	While Alaghbari et al. (2007) studied the problem of time overrun and found that the top ten significant factors of time overrun include financial difficulties by owner, financial problems by contractor, supervision too late, slowness in making decisions and slow give instructions by consultant, lack of material by external factor, poor site management, materials shortage, construction mistakes and delay delivery of materials by contractor, slowness making decision by owner, lack of experience and incomplete documents by consultant.				
47 : Ahmed, Azhar - 2002 - Construction delays in Florida An empirical study	Because of the overriding importance of time for both the Owner (in terms of performance) and the Contractor (in terms of money), it is the source of frequent disputes and claims leading to lawsuits.				
49 : Ali, Al-Sulaihi, Al-Gahtani - 2013 - Indicators for measuring performance of building construction companies in Kingdom of Saudi Arabia	The main problem lies in the fact that financial indicators are lagging indicators, in the sense that they tell the results of managerial actions already taken				
54 : An empirical study on the role of context factors in employees' commitment to change	This creates a potential common method bias problem that makes the interpretation of zero-order correlations more difficult. Self-serving bias is another possible problem that is inherent with the use of self-report measures.				
64 : Application of ELECTRE Method for Sub-Contractor Selection Using Interval-Valued Fuzzy Sets	Due to lack of information regarding to attributes, the classical MCDM methods cannot effectively be applied in the problem solving.				
69 : Arif, Kulonda, Egbu - 2011 - Enterprise-wide information system for construction A document based approach	efficient and informal communication networks. They can afford fast response to internal problem solving. Small and medium enterprises often lack time or resources to identify and use important external sources of scientific and technological expertise				
72 : astrategyforimprovingconstructionprojectssustainabilitythroughvaluemgt approach	a number of issues have recently arisen such as reworks, time delay, rising costs, lack of communication and coordination, and wastages.				
81 : Aziz - 2013 - Ranking of delay factors in construction projects after Egyptian revolution	Gunduz et al. [10] identified the delay factors in construction projects, since delays are considered to be a serious problem in the construction industry.				

83 : Barton, Ambrosini - 2012 - The moderating effect of organizational change cynicism on middle manager strategy commitment	OCC represents a cognitive aspect of strategizing which is a significant and challenging problem for organizations implementing change since past experiences of unsuccessful change mean that employees will become less likely to support future change initiatives				
86 : Berente, Vandenbosch, Aubert - 2009 - Information flows and business process integration	Different groups interpret information differently, and therefore problem-free communication cannot be taken for granted				
89 : Broadwell, Sastry, Traupman - 2002 - FIG A prototype tool for online verification of recovery mechanisms	The resource may be scarce at the time of program initialization, thus causing an error at that point.				
90 : Business Analysis Techniques in Business Reengineering	Limiting its use to process improvement constrains the problem and solution space, and increases the likelihood of project failure				
93 : Business process redesign project success the role of socio technical theory	One reason is that it is almost impossible to use traditional reflective constructs to model such a complex problem.				
96 : Business Process Re-Engineering and Organizational Performance of Selected Automobile Firms in Southeast of Nigeria	policy inconsistency and lack of adequate implementation framework, even on important issue that affects national development.				
97 : Business Process Reengineering and Performance Improvement The Case of Chase Manhattan Banks	management determines that a significant gap exists between actual and desired results, creating a business problem.				
99 : Business Process Re-engineering(BPR) The REBUS Approach	it was possible for three different groups to be involved when a request or enquiry was made, which was potentially confusing for the users unsure about whom to contact. An additional problem that was identified was the deficiency of a clear understanding of the ownership of any process.				
105 : Case-based reasoning for contractor prequalification	Research efforts have been diverted to the development of Knowledge-Based Systems (KBS) (Russell and Skibniewski, 1990; Ng and Skitmore, 1995) which, although designed to mimic the problem solving process of experts, are weak in modelling ill-defined domains (Riesbeck and Schank, 1989).				
106 : Cause and Impact of Dispute and Delay the closing of Final Account in Malaysia Construction Industry	The cause of the problem to closing the final account is because dispute and delay.				
107 : causes and effects of delays in malaysian construction industry	This study identified 10 most important causes of delay from a list of 28 different causes and 6 different effects of delay. Ten most important causes were: (1) contractor's improper planning, (2) contractor's poor site management, (3) inadequate contractor experience, (4) inadequate client's finance and payments for completed work, (5) problems with subcontractors, (6) shortage in material, (7) labor supply, (8) equipment availability and failure, (9) lack of communication between parties, and (10) mistakes during the construction stage. Six main effects of delay were: (1) time overrun, (2) cost overrun, (3) disputes, (4) arbitration, (5) litigation, and (6) total abandonment.				
109 : Chaneta - 2010 - Organisational Behaviour	When confronted with a problem, the organisational culture restricts what employees can do by suggesting the correct way with which the organisation solves the problem. The degree to which managers focus on the result or outcomes rather than on the techniques and processes used to achieve those outcomes. The degree to which management decisions take into consideration the effect of outcomes on people with the organisation. The degree to which people are aggressive and competitive rather than easygoing. The degree to which organisational activities emphasise the maintaining of the status quo.				
111 : Change process characteristics and resistnce to organisational change The role of employee perceptions of justice	Although there are many potential causes of failed change, 'resistance to change' is widely recognised as a significant contributor to this problem.				
115 : Charnle+&+Lemon_Exploring+the+process+of+whole+system+design	sustainability cannot be achieved in the absence of whole systems thinking, addressing the problem at a system level.				
117 : CIB6365	Problems may grow if they are not identified and addressed promptly.				
120 : Competitive Priorities Investigating The Need for Trade-Off in Operations Strategy	When the priorities are not transformed, correlations between every pair are significant.				
128 : Cost benefit analysis of re-engineering the business process in Nigerian banks	These according to Hammer (1995) and Kapoor (2010) are: not focusing on critical processes first; trying to gradually "fix" a process instead of dramatically re-inventing it; making process reengineering the priority and ignoring everything else				
134 : Design for Manufacturing of Composite Structures for Commercial Aircraft	One common challenge in product development is risk of conflicts between different departments due to differences in priorities and aim				
136 : Preparation for LCS	the Yard is not sure of what they are supposed to do and in the end is assuming that the French will resolve all our problem eventually.				
137 : PV ISSUES & LESSON LEARNT	rework				

Framework Matrices - Possible Solution of Conflict				
	A : Possible Solutions of Conflict	B : Implementation of Production Friendly Drawing	C : Improve Communication	D : Improve Cooperation
1 : 1 Introduction	'Zone' completion is a much more effective method to control works than System-by-System methodology during the installation stage. Work sequence is the prerequisite in scheduling to avoid interferences between different working teams, waiting time, loss time and reworks. For completing compartment mechanically, the schedule should Integrate Hull, Outfitting and Painting [IHOP] works. IHOP is the most advanced method in ship building and ship repairing to attain the most excellent performance. Work Execution Program (WEP) should be strictly followed to maintain IHOP Schedule by production units. 'Dynamic monitoring and Daily control' is extremely important. It should be a routine for all production supervisors to update the actual progress, adjust time schedule and update manpower allocation whenever any deviations occur in order to keep to schedule. 'Zone' completion is a much more effective method to control works than System-by-System methodology during the installation stage. Work sequence is the prerequisite in scheduling to avoid interferences between different working teams, waiting time, loss time and reworks. For completing compartment mechanically, the schedule should Integrate Hull, Outfitting and Painting [IHOP] works.			
2 : 1E&E-HOU-Azmi	*Pihak Jabatan Kejuruteraan terpaksa menggunakan apa sahaja cara bagi mendapatkan informasi yang diperlukan seperti membuat carian di jabatan dan unit BN Shipyard dan juga TLDM, menghubungi OEM atau menggunakan kemudahan internet. Jika informasi masih gagal diperolehi kebiasaannya tindakan penggantian baru terpaksa dilakukan.* *PDF memudahkan kerja-kerja pembaikan kapal secara keseluruhannya dan dapat mengurangkan konflik. Ini kerana PDF menyediakan informasi untuk Material Take-Off (MTO) dapat dilakukan, boleh dijadikan panduan untuk kerja-kerja bengkel dan panduan lengkap kerja-kerja pemasangan di kapal.* *Pihak Jabatan Kejuruteraan terpaksa menggunakan apa sahaja cara bagi mendapatkan informasi yang diperlukan seperti membuat carian di jabatan dan unit BN Shipyard dan juga TLDM, menghubungi OEM atau menggunakan kemudahan internet. Jika informasi masih gagal diperolehi kebiasaannya tindakan penggantian baru terpaksa dilakukan.* *PDF memudahkan kerja-kerja pembaikan kapal secara keseluruhannya dan dapat mengurangkan konflik. Ini*			
3 : 1Working File for Thesis		Yes, I believe that Production Friendly Drawing can resolve the conflict. It helps to smoothen the progress of works. For example, we have arrangement drawing, fabrication drawing and installation drawing. Each of them has stated all functions of the material and also fitting. So when workshop team withdraw the material, they can follow exactly as per plan and can install to the ship excellently. Setuju, memang PDF memudahkan kerja-kerja pembaikan kapal secara keseluruhannya dan dapat mengurangkan konflik. Ini kerana PDF menyediakan informasi untuk Material Take-Off (MTO) dapat dilakukan, boleh dijadikan panduan untuk kerja-kerja bengkel dan panduan lengkap kerja-kerja pemasangan di kapal. sangat membantu menyelesaikan konflik. Sebenarnya ianya bermula dari penyediaan scope of work lagi. Semasa itu semua		Generally, ship repair works are improved when Engineering Department give their support to lead Generally, ship repair works are improved when Engineering Department give their support to lead
4 : 2 Current Status of KD LEKIR	Engaged AANS on Jan 12th, 2014 (15 manpower) to salvage some work from Estech. However the numbers is not enough to recover the delay works. Engaged AANS on Jan 12th, 2014 (15 manpower) to salvage some work from Estech. However the numbers is not enough to recover the delay works.			
6 : 2 Current Status of KD LEKIR_Week 35	BNS purchased several RMN outstanding spares to expedite work. Sub-contractor work overnight after ship back from Sea Trial. MMAM urged BNS for perfect completion such as: i. Finish-off remaining fitting work. ii. Remove unnecessary fitting and cable. iii. Put-up tally and cable marking. iv. Painting of panel. v. Finish-off remaining touch up work. BNS engaged new sub-contractor (labor supply) for cosmetic painting. Sea Trial for IWS run smoothly with several minor defect and handled correctly by OEM. OEM experienced the same issue when handling the same system In KD KASTURI, thus the problem is solved easily. BNS purchased several RMN outstanding spares to expedite work. Sub-contractor work overnight after ship back from Sea Trial. MMAM urged BNS for perfect completion such as: i. Finish-off remaining fitting work. ii. Remove unnecessary fitting and cable. iii. Put-up tally and cable marking. iv. Painting of panel. v. Finish-off remaining touch up work. BNS engaged new sub-contractor (labor supply) for cosmetic painting.			
7 : 2 Delivery of KD LEKIR_Week 44	the punch list should be completed in a relatively short period of time and good communication between the project team and subcon should remain ongoing. the punch list should be completed in a relatively short period of time and good communication between the project team and subcon should remain ongoing.			
8 : 2Hull -HOU-Shahrin	***Yes, I believe that Production Friendly Drawing can resolve the conflict.*** ***Yes, I believe that Production Friendly Drawing can resolve the conflict.***			
9 : 2Hull Outfit-Alif	*PDF memudahkan kerja-kerja pembaikan kapal secara keseluruhannya dan dapat mengurangkan konflik. Ini kerana PDF menyediakan informasi untuk Material Take-Off (MTO) dapat dilakukan, boleh dijadikan panduan untuk kerja-kerja bengkel dan panduan lengkap kerja-kerja pemasangan di kapal.* *PDF memudahkan kerja-kerja pembaikan kapal secara keseluruhannya dan dapat mengurangkan konflik. Ini kerana PDF menyediakan informasi untuk Material Take-Off (MTO) dapat dilakukan, boleh dijadikan panduan untuk kerja-kerja bengkel dan panduan lengkap kerja-kerja pemasangan di kapal.*			
11 : 3 Intensive Monitoring & Control	PM has to engaged new sub-contractor to assist on the last minutes painting job and instruct existing sub-contractor to add man power. PM has to engaged new sub-contractor to assist on the last minutes painting job and instruct existing sub-contractor to add man power.			
12 : 3 Intensive Monitoring and Control	Daily Problem-solving meeting Daily Problem-solving meeting			
13 : 3 Lessons for succesfull transformational change	I suggest that your discussions of what to change is balanced with discussions on how the change will be managed I suggest that your discussions of what to change is balanced with discussions on how the change will be managed			
14 : 3 Lessons for succesfull transformational change (2)	I suggest that your discussions of what to change is balanced with discussions on how the change will be managed I suggest that your discussions of what to change is balanced with discussions on how the change will be managed			
15 : 5 Spares Management	Reducing the overall costs of materials ii. Better handling of materials iii. Materials will be on site when needed and in quantities required iv. Improvement in labor productivity v. Improvement in project schedule vi. Better relation with suppliers vii. Reduce of surplus materials viii. Reduce storage of materials on site ix. Labor savings x. Stock reduction Close monitoring and controlling able to tracks, reviews and revises spare material acquisition activities in order to ensure the item creates the deliverables in accordance with the overall project objectives. Reducing the overall costs of materials ii. Better handling of materials iii. Materials will be on site when needed and in quantities required iv. Improvement in labor productivity v. Improvement in project schedule vi. Better relation with suppliers vii. Reduce of surplus materials viii. Reduce storage of materials on site ix. Labor savings x. Stock reduction Close monitoring and controlling able to tracks, reviews and revises spare material acquisition activities in order to ensure the item creates the deliverables in accordance with the overall project objectives.			

16 : 6 Discipline Manpower Schedule	Workforce can be formed and deployed for main production flow lines according to Standard work or DWP. Most of works in By-pass lines can be carried out by the same working teams in main line doing overtime work on weekday and/or on Saturday/Sunday. If not, the detached workforce has to be mobilized depending on the size of works. Workforce can be formed and deployed for main production flow lines according to Standard work or DWP. Most of works in By-pass lines can be carried out by the same working teams in main line doing overtime work on weekday and/or on Saturday/Sunday. If not, the detached workforce has to be mobilized depending on the size of			
17 : 6 Roles and Responsibility of Dept	Designer and production engineers need to closely interact each other to set up hull construction, outfitting and painting for successful integration of different discipline. Designer and production engineer must have a good understanding of the entire shipbuilding system. Designer and production engineers need to closely interact each other to set up hull construction, outfitting and painting for successful integration of different discipline.			
18 : 7 Spares Management	The BNSY coordinator need to communicate on daily basis with RMN material coordinator so that any issue can be solve immediately. Person In-Charge (PIC) in Supply Chain / Procurement, Material Coordinator of SLEP and Material Handlers of Production Department must be aligned so that every PIC is aware of their respective responsibility and capable to do fast countermeasure to solve any issue arise. The BNSY coordinator need to communicate on daily basis with RMN material coordinator so that any issue can be solve immediately. Person In-Charge (PIC) in Supply Chain / Procurement, Material Coordinator of SLEP and Material Handlers of Production Department must be aligned so that every PIC is aware of their respective responsibility and capable to do fast countermeasure to solve any issue arise.			
20 : 8 Dynamic Monitoring and Control	Red tag been introduce to declare and highlight the problem and issue arising once any discipline unable to complete their task according to WEP, elaborated from IHOP Schedule due to any other constraint and affected factor such as spare outstanding, incomplete sequence job before and etc. ZM during his progress monitoring on-board will observe the issue on red tag and do problem shooting Red tag been introduce to declare and highlight the problem and issue arising once any discipline unable to complete their task according to WEP, elaborated from IHOP Schedule due to any other constraint and affected factor such as spare outstanding, incomplete sequence job before and etc.			
21 : 9 Capacity Building Up	Fabrication Sequence Diagram (FSD), Detailed Work Procedure (DWP) Early and continued interaction between Designer and Production engineer is critical for successful integration of their different concerns. Establish close communication channel to integrate planning/production data into design. Organize 'Production drawing team' as soon as possible. Fabrication Sequence Diagram (FSD), Detailed Work Procedure (DWP) Early and continued interaction between Designer and Production engineer is critical for successful integration of their different concerns.	Concentrate 'Production engineering' capability on these tasks. Organize 'Production drawing team' as soon as possible. Concentrate 'Production engineering' capability on these tasks. Organize 'Production drawing team' as soon as possible.	Establish close communication channel to integrate planning/production data into design. Establish close communication channel to integrate planning/production data into design.	
23 : A Decision Support Model for Contractor Selection in a Government Procurement Supply Chain Evidence from emerging market	Define an unstructured problem and determine the overall goal. The overall goal is to select the best contractor. Define an unstructured problem and determine the overall goal. The overall goal is to select the best contractor.			
25 : A dynamic e-Reporting system for contractor's performance appraisal	score or ranking to reflect his current overall performance level and recent trend in pursuing performance improvement score or ranking to reflect his current overall performance level and recent trend in pursuing performance improvement.			
28 : A Knowledge-Based System For Construction Subcontractor Appraisal	Objectives and expectations definition" (component 1) establishes the client's expectation and strategic objectives that best reflect the distinctive requirements of the client, project and external environment. "Criteria and performance indicators formulation" (component 2) aims to formulate a list of performance evaluation criteria and performance indicator based on the type and size of subcontractor. Appraisal" (component 3) compares the actual quality of subcontractor's works against the performance indicator and computes a performance rating for each subcontractor. "Feedback and appeal" (component 4) provides a means for participants to express their opinions regarding the model's reliability Objectives and expectations definition" (component 1) establishes the client's expectation and strategic objectives that best reflect the distinctive requirements of the client, project and external environment. "Criteria and performance indicators formulation" (component 2) aims to formulate a list of performance evaluation criteria and performance indicator based on the type and size of subcontractor. Appraisal" (component 3) compares the actual quality of subcontractor's works against the performance indicator and computes a performance rating for each subcontractor. "Feedback and appeal" (component 4) provides a means for participants to express their opinions regarding			
29 : A Research on the Relationship between Top Managers' Intelligence and Their Ideas about Business Process Reengineering Consideration of Emotionality and Spirituality	When solving a problem, I inspect every possibility, and then decide the best. When solving a problem, I inspect every possibility, and then decide the best.			
30 : A Review of Enterprise Resource Planning Implementation Issues	requires people to relearn new skills and adapt to new technology reengineering and customization, user training and cross-functional team to take care of the problem that might arise in different areas, vision and planning, consultant selection and relationship, effective communication plan, ERP system selection, ERP system integration and post-implementation evaluation measures. requires people to relearn new skills and adapt to new technology reengineering and customization, user training and cross-functional team to take care of the problem that might arise in different areas, vision and planning, consultant selection and relationship, effective communication plan, ERP system selection, ERP system integration and post-implementation evaluation measures.			
31 : A Theory of Enterprise Transformation	Managers' roles as leaders, rather than problem solvers and decision-makers, are also central to transformation Managers' roles as leaders, rather than problem solvers and decision-makers, are also central to transformation			
33 : Aalst - 2015 - Business process simulation survival guide	After defining the problem, the next phase is modeling. Simulation packages that fit the problem domain merely require a correct parameterization. New insights may even lead to 10 Wil M.P. van der Aalst adjusting the problem definition and/or the conceptual model. After defining the problem, the next phase is modeling. Simulation packages that fit the problem domain merely require a correct parameterization. New insights may even lead to			

34 : abeb802a700445bdbab82dcc15c71714cf77	Departing from incremental and piecemeal approaches such as the problem solving process, business process reengineering (BPR) emerged as a radical innovation and change program with a multidisciplinary nature First, the problem situation in an organization is conceptualized in order to structure the problem situation. Second, using empirical data, a descriptive and validated empirical model is built that can be used to analyze and diagnose the problem situation. Third, the problem diagnosis informs the identification of alternative solutions that are analyzed using prescriptive empirical (simulation) models. Fourth, based on the analysis of alternative solutions, a particular (set of) solution(s) is selected. Finally, the selected (set of) solution(s) is implemented. Departing from incremental and piecemeal approaches such as the problem solving process, business process reengineering (BPR) emerged as a radical innovation and change program with a multidisciplinary nature First, the problem situation in an organization is conceptualized in order to structure the problem situation. Second, using empirical data, a descriptive and validated empirical model is built that can be used to analyze and diagnose the problem situation. Third, the problem diagnosis informs the identification of alternative solutions that are analyzed using prescriptive empirical (simulation) models. Fourth, based on the analysis of alternative solutions, a particular (set of) solution(s) is selected. Finally, the selected (set of) solution(s) is implemented.			
35 : Action Learning and Action Research(ALAR) A Methodological Integration in an Inter-Organizational Setting	The group-comprises a typical number of six to eight members who care about the problem, know something about it and have the power to implement solutions through the monthly meetings facilitators gave participants time to plan and problem-solve as well as to present their progress to date. The group-comprises a typical number of six to eight members who care about the problem, know something about it and have the power to implement solutions			
36 : Action Research A New Look	They believed that professional educators should become involved in community problem-solving. They believed that professional educators should become involved in community problem-solving.			
37 : Action research as a method for improving the effectivity of change processes and stimulating learning in organizations a case study				
38 : Action research as culture change tool	Initially an exploratory stance is adopted, where an understanding of a problem is developed and plans are made for some form of interventionary strategy Initially an exploratory stance is adopted, where an understanding of a problem is developed and plans are made for some form of interventionary strategy			
40 : Action Research for Operations Management(2)	AR always involves two goals: solve a problem and contribute to science. AR always involves two goals: solve a problem and contribute to science.			
41 : Action Research Reflections the wanganui adult litera cyand employment project	all professional educators should become involved in community problem-solving. all professional educators should become involved in community problem-solving.			
42 : Action Research Theory Paper Review Origins, Vigor and Applications	it's the practitioner's who need to play the major role in problem identification, data gathering and implementing desirable solutions while serving as experts in technical matters such as engineering, technology and cost accounting. A form of Learning by doing focusing on resolving real problems on a timely manner (problem-based learning). it's the practitioner's who need to play the major role in problem identification, data gathering and implementing desirable solutions while serving as experts in technical matters such as engineering, technology and cost accounting. A form of Learning by doing focusing on resolving real problems on a timely manner (problem-based learning).			
43 : Addressing the contractor selection problem using and evidential reasoning approach	This DSS employed inductive learning and neural networks to extract the problem solving knowledge. should understand and have a clear picture of the whole problem before they start trying to solve it. display a decision problem in a hierarchical structure This DSS employed inductive learning and neural networks to extract the problem solving knowledge. should understand and have a clear picture of the whole problem before they start trying to solve it. display a decision problem in a hierarchical structure			
45 : after	Framing an issue as a problem may influence who gets involved in problem resolution. Framing an issue as a problem may influence who gets involved in problem resolution.			
46 : Aguilar-Saven - 2004 - Business process modelling Review and framework	It is a graphical representation in which symbols are used to represent such things as operations, data, flowdirection, and equipment, for the definition, analysis, or solution of a problem. It is a graphical representation in which symbols are used to represent such things as operations, data, flowdirection, and equipment, for the definition, analysis, or solution of a problem.			
47 : Ahmed, Azhar - 2002 - Construction delays in Florida An empirical study	The concepts of "liquidated damages" and "acceleration" are often opposite approaches in solving the delay problem The concepts of "liquidated damages" and "acceleration" are often opposite approaches in solving the delay problem			
48 : Aksoy, Sucky, Öztürk - 2014 - Dynamic Strategic Supplier Selection System With Fuzzy Logic	although the problem of strategic supplier selection is not new, quite a few researchers treat the strategic supplier selection issue as an optimization problem, which requires the formulation of an objective function. although the problem of strategic supplier selection is not new, quite a few researchers treat the strategic supplier selection issue as an optimization problem, which requires the formulation of an objective function.			
49 : Ali, Al-Sulaihi, Al-Gahtani - 2013 - Indicators for measuring performance of building construction companies in Kingdom of Saudi Arabia	managers need current, up-to-date, and mostly nonfinancial information to be able to take better decisions managers need current, up-to-date, and mostly nonfinancial information to be able to take better decisions			
50 : Al-Mashari, Irani, Zairi - 2001 - Business process reengineering a survey of international experience	The next most used techniques were ``Process capture and modelling'', followed by ``Problem solving and diagnosis''. While the European respondents rank ``Project management'' techniques highest, the US organisations rank ``Problem solving and diagnosis'' techniques highest. The next most used techniques were ``Process capture and modelling'', followed by ``Problem solving and diagnosis''. While the European respondents rank ``Project management'' techniques highest, the US organisations rank ``Problem solving and diagnosis'' techniques highest.			
51 : Altrichter et al. - 2013 - Teachers investigate their work An introduction to action research across the professions	their effects and side-effects need to be monitored in order to learn from experience and further improve the action strategies. their effects and side-effects need to be monitored in order to learn from experience and further improve the action strategies.			
52 : An Analysis of the Selection of Project Contractor in the Construction Management Process	This problem can be corrected with an update of the qualification data during the bid. This problem can be corrected with an update of the qualification data during the bid.			
53 : An Approach of Contractor Selection By Analytical Heirarchy Process	Golden (1989), described AHP as analytical by using members, hierarchy by structuring the decision problem into levels and process-oriented because its step- by-step approach. Golden (1989), described AHP as analytical by using members, hierarchy by structuring the decision problem into levels and process-oriented because its step- by-step approach.			

54 : An empirical study on the role of context factors in employees' commitment to change				
55 : An Examination of the role of organizational enablers in business process reengineering and the impact of Information Technology	outside consultants can be used to provide expertise to BPR projects. outside consultants can be used to provide expertise to BPR projects.			
56 : ANALYSIS OF CRITERIA FOR CONTRACTORS' QUALIFICATION EVALUATION	solve the problem of prequalification and final contractor selection by applying the analytical hierarchy process (AHP) that allows the consideration of multiple criteria. solve the problem of prequalification and final contractor selection by applying the analytical hierarchy process (AHP) that allows the consideration of multiple criteria.			
57 : Analysis of factors critical to construction project success in Malaysia	re-exploring the factors essential to the success of the construction project will help in gaining a better insight towards the industry, especially on the human-related issue. re-exploring the factors essential to the success of the construction project will help in gaining a better insight towards the industry, especially on the human-related issue.			
61 : Anjard - 1996 - Applying re-engineering	Re-engineering is not a panacea for every problem within an organization. There are risks but there are great rewards. Re-engineering is not a panacea for every problem within an organization. There are risks but there are great rewards.			
62 : Ansari et al. - 2011 - Application of Six-Sigma in finance a case study(4)	Understanding customer (internal and external) requirements is the key to achieving the project's goal. Understanding customer (internal and external) requirements is the key to achieving the project's goal.			
63 : Appelbaum et al. - 2015 - Organizational outcomes of leadership style and resistance to change (Part Two)	In a transformational change, the workforce must adapt to multiple variations in their work environment and firms must be able to change by solving problems as they arise and by learning from the problem-solution process In a transformational change, the workforce must adapt to multiple variations in their work environment and firms must be able to change by solving problems as they arise and by learning from the problem-solution process			
65 : Application of the graph theory and matrix methods to contractor ranking	The usage of a permanent concept helps in better appreciation of the criteria and it characterizes the considered selection problem as it contains all possible structural components of the criteria and their relative importance The usage of a permanent concept helps in better appreciation of the criteria and it characterizes the considered selection problem as it contains all possible structural components of the criteria and their relative importance			
66 : Applying Lewin's Change Management Theory to the Implementation of Bar-Coded Medication Administration	Unfreezing involves identifying key players that will be affected by the change and gathering them together to communicate ideas and create lists of all driving and static forces that will affect the project. Unfreezing involves identifying key players that will be affected by the change and gathering them together to communicate ideas and create lists of all driving and static forces that will affect the project.			
67 : AR Pilot thesis - Dr Azman	Each AR cycle consists of the five stages of diagnosis, planning, action, evaluation and learning. Each AR cycle consists of the five stages of diagnosis, planning, action, evaluation and learning.			
68 : Argentinian Journal(AJAL)	Modelling: an expert carries out a task so that the learners can observe and build a conceptual model of the processes required to accomplish a task. Coaching: involves an expert observing a novice whilst they carry out a task, offering hints, feedback, modelling, reminders and new tasks aimed at bringing their performance closer to the expert performance. Scaffolding: refers to the support provided to help the novice carry out a task, taking the form of suggestion or help. Articulation: includes any method of getting the novice to articulate their knowledge, reasoning or problem-solving in a particular domain. Reflection: enables the novices to compare their own problem-solving processes with those of an expert, another novice and, ultimately, an ? M.R. Moya internal cognitive model of expertise. Exploration: involves pushing novices into a mode of problem-solving on their own. Exploration is the natural culmination of the fading of support from the expert. Modelling: an expert carries out a task so that the learners can observe and build a conceptual model of the processes required to accomplish a task. Coaching: involves an expert observing a novice whilst they carry out a task, offering hints, feedback, modelling,			
70 : Ashayeri, Keij, Bröker - 1998 - Read at DeepDyve »Global business process re-engineering a system dynamics-based approach	the ANP should only be used in case of a general approach of complex worldwide change. The problem can then be reduced significantly. the ANP should only be used in case of a general approach of complex worldwide change. The problem can then be reduced significantly.			
72 : astrategyforimprovingconstructionprojectssustainability throughvaluemgtapproach	a proactive, creative, problem-solving or problem-seeking service, which maximises the functional value of a project by managing its development from concept to use through structured, team-oriented exercises which make explicit, and appraise subsequent decisions, by reference to the value requirements of the clients.' a proactive, creative, problem-solving or problem-seeking service, which maximises the functional value of a project by managing its development from concept to use through structured, team-oriented exercises which make explicit, and appraise subsequent decisions, by reference to the value requirements of the clients.'			
73 : Atkinson - 2005 - Managing Resistance To Change				
74 : Attitudes of Midle Managers to Quality-Based Organisational Change	The way in which organisation 1 dealt with the problem of middle management resistance was by empowering middle managers to decide whether or not the programme would continue. The way in which organisation 1 dealt with the problem of middle management resistance was by empowering middle managers to decide whether or not the programme would continue.			
75 : Authenticity as first person practice An Exploration based on Bernard Lonergan	experience, understanding, and judgement. experience, understanding, and judgement.			
77 : Automated Manufacturability Analysis-A Survey	To expedite these time-consuming iterations, a number of software tools have been developed allowing designers to analyze manufacturability □ during the design stage. To expedite these time-consuming iterations, a number of software tools have been developed allowing designers to analyze manufacturability □ during the design stage.			
78 : Aydinli, Brinkkemper, Ravesteyn - 2009 - Business Process Improvement in Organizational Design of e-Government Services(3)	Optimization is the use of specific techniques to determine the most cost effective and efficient solution to a problem or a process. Avoid redundant effort by using knowledge management systems. Make it easy for employees to find the necessary information and resources to do their jobs. Communicate important information widely and quickly in the organization. Capture key information on all work performed so that everyone will know what others have done and who to contact for further details. Optimization is the use of specific techniques to determine the most cost effective and efficient solution to a problem or a process. Avoid redundant effort by using knowledge management systems. Make it easy for employees to find the necessary information and resources to do their jobs. Communicate important information widely and quickly in the organization. Capture key information on all work performed so that everyone will know what others have done and who to contact			
79 : Ayrancı, Ayrancı - 2015 - A research on the relationship between top managers' intelligence and their ideas about business process reeng	When solving a problem, I inspect every possibility, and then decide the best When solving a problem, I inspect every possibility, and then decide the best			

80 : Aziz - 2013 - Optimizing strategy for repetitive construction projects within multi-mode resources	Ammar [39] developed a mathematical optimization model which links the Critical Path Method, ''CPM'' with least cost optimization, mathematical programming, and DCF techniques in order to optimize the traditional time cost trade off problem. Ammar [39] developed a mathematical optimization model which links the Critical Path Method, ''CPM'' with least cost optimization, mathematical programming, and DCF techniques in order to optimize the traditional time cost trade off problem.			
82 : Bartolo, Smith - 1993 - Interdisciplinary work and the information search process A comparison of manual and online searching	"information search process (ISP) is the user's constructive activity of finding meaning from information in order to extend his or her state of knowledge on a particular topic or problem. "information search process (ISP) is the user's constructive activity of finding meaning from information in order to extend his or her state of knowledge on a particular topic or problem.			
85 : Behavioral Aspects of ERP Implementation A Concepcual Review	The model asserts that if these four components are taken as a whole while implementing ERP, the end users of the software won't face any significant problem. The model asserts that if these four components are taken as a whole while implementing ERP, the end users of the software won't face any significant problem.			
87 : Beyond the Perceived of Employer Tuition Reimbursement Program, A Qualitative Inquiry into Employee Graduate and Postgraduate Education	Shaw (2002) opined action research is a cooperative research effort engaging people who are actively involved in a problem to provide valid and descriptive information to solve a problem or bring about change. Shaw (2002) opined action research is a cooperative research effort engaging people who are actively involved in a problem to provide valid and descriptive information to solve a problem or bring about change.			
88 : Boyer, Lewis - 2002 - Competitive Priorities Investigating the Need for Trade-Offs in Operations Strategy	According to Boyer and McDermott (1999), when plants lack a high degree of strategic consensus, researchers should avoid placing too much emphasis on any respondent's ratings. To address this problem, we take an average of the manager and operator constructs for each plant on each priority for all further analysis. According to Boyer and McDermott (1999), when plants lack a high degree of strategic consensus, researchers should avoid placing too much emphasis on any respondent's ratings. To address this problem, we take an average of the manager and operator constructs for each plant on each priority for all further analysis.			
91 : Business Process Modelling, Simulation and Reengineering Call Centers	Data mining techniques (Paprzycki et al., 2004) (such as linear neural networks, multi-layered perceptions and neural network approach) can be applied to the problem of predicting the quality of service in call centres. Static design problem determines staffing levels according to which agents are assigned to work schedules. Dynamic control problem resolves the real-time assignment of incoming calls to agents. Data mining techniques (Paprzycki et al., 2004) (such as linear neural networks, multi-layered perceptions and neural network approach) can be applied to the problem of predicting the quality of service in call centres. Static design problem determines staffing levels according to which agents are assigned to work schedules. Dynamic control problem resolves the real-time assignment of incoming calls to agents.			
92 : Business process portfolio selection in re-engineering projects	valuates the risk and return of each reengineering scenario aiming at selecting a number of scenarios by adopting a portfolio selection problem (PSP) in choosing high priority and suitable scenarios that reduce and control the imposed risk of reengineering project. valuates the risk and return of each reengineering scenario aiming at selecting a number of scenarios by adopting a portfolio selection problem (PSP) in choosing high priority and suitable scenarios that reduce and control the imposed risk of reengineering project.			
94 : Business Process Reengineering	" the fundamental rethinking and radical redesign of the business processes to achieve dramatic improvements in critical, contemporary measures of performance, such as cost, quality, service and speed" " the fundamental rethinking and radical redesign of the business processes to achieve dramatic improvements in critical, contemporary measures of performance, such as cost, quality, service and speed"			
95 : Business Process Reengineering A Recent Review	Current processes can be understood and documented by flowcharting and process mapping. As processes are documented, their interrelationships become clear and a map of the organization emerges. Current processes can be understood and documented by flowcharting and process mapping. As processes are documented, their interrelationships become clear and a map of the organization emerges.			
97 : Business Process Reengineering and Performance Improvement The Case of Chase Manhattan Banks	senior management translates this business problem into process performance problems and opportunities. This allows the company to focus on fundamentally transforming the target process(es), thus improving business results and solving the problem. senior management translates this business problem into process performance problems and opportunities. This allows the company to focus on fundamentally transforming the target process(es), thus improving business results and solving the problem.			
98 : Business process re-engineering projects in Finland An evaluation of change management in 21 large	Management must make a conscious decision whether a process is up to date or whether it needs to be re-designed. Process re-engineering as a project consisting of design and implementation phases. Once a re-engineering project has been completed, the reconstruction process enters the continuous improvement cycle Management must make a conscious decision whether a process is up to date or whether it needs to be re-designed. Process re-engineering as a project consisting of design and implementation phases. Once a re-engineering project has been completed, the reconstruction process enters the continuous improvement cycle			
101 : By - 2005 - Organisational change management A critical review	Burnes (2004) refers to incremental change as when individual parts of an organisation deal increasingly and separately with one problem and one objective at a time. Burnes (2004) refers to incremental change as when individual parts of an organisation deal increasingly and separately with one problem and one objective at a time.			
102 : Calhoun - 2008 - Action research for school improvement	For 60 years, action research has been an avenue for creating professional learning communities whose members engage in problem solving and for attaining individual and collective goals. For 60 years, action research has been an avenue for creating professional learning communities whose members engage in problem solving and for attaining individual and collective goals.			
103 : Case Studies in Awarding the lowest Bid Price in Construction Projects	Using a multi-criteria approach for evaluating contractors with respect to their economic and technological aspects, quality standards, past performance, and other tangible and intangible characteristics may help solving this problem Using a multi-criteria approach for evaluating contractors with respect to their economic and technological aspects, quality standards, past performance, and other tangible and intangible characteristics may help solving this problem			
104 : Case Study of a Participatory Action Research Process to Examine Burnout nd Generate Change Oriented Strtegies Among Workers in a Human	explores how more sustainable results can be obtained when workers themselves design the interventions, and explores how participatory action research is uniquely suited to address problems in the workplace by putting the problem in the hands of those who own it. explores how more sustainable results can be obtained when workers themselves design the interventions, and explores how participatory action research is uniquely suited to address problems in the workplace by putting the problem in the hands of those who own it.			

110 : Change management Theories and Methodologies	Ensure clear expression of the reasons for change and help the sponsor communicate. Plan the involvement and project activities for the change sponsor or agents. Plan how and when the changes will be communicated and delivered. Assess the impact of the changes on people and the organization's structure. Ensure that people involved and affected by the change understand the change process. Ensure those involved or affected have help and support during times of uncertainty or upheaval. Assess training needs driven by the change and plan when and how this will be implemented. Identify and agree on the success indicators for change, and ensure they are regularly measured and reported. Ensure clear expression of the reasons for change and help the sponsor communicate. Plan the involvement and project activities for the change sponsor or agents. Plan how and when the changes will be communicated and delivered.			
112 : Chapter 3_Planning & Control Methodolgy & Approach	a complexity of planning with respect to Original Equipment Manufacturer (OEM) availability is needed. a complexity of planning with respect to Original Equipment Manufacturer (OEM) availability is needed.			
113 : Chapter 5_Spare Management	daily accounting of material supply progress need to be practiced where special attention need to be given for RMN supplied materials Person In-Charge (PIC) in Supply Chain / Procurement, Material Coordinator of SLEP and Material Handlers of Production Department must be aligned so that every PIC is aware of their respective responsibility and capable to do fast countermeasure to solve any issue arise. daily accounting of material supply progress need to be practiced where special attention need to be given for RMN supplied materials Person In-Charge (PIC) in Supply Chain / Procurement, Material Coordinator of SLEP and Material Handlers of Production Department must be aligned so that every PIC is aware of their respective responsibility and capable to do fast countermeasure to solve any issue arise.			
114 : Chapter 6_Summary	All workers should think on positive side by sharing their problem. Any comment from Top Management should motivated them to be better. Ship construction required involvement from many different discipline. Each and every system are related to each other's. BNS need to organize this multiple discipline very carefully and structured through morning assembly, exercise and WEP discussion. Through DWP, we can get actual work volume and man power requirement based on exact capabilities of BNS. BNS should consider to train frontline supervisor to be more outstanding, stand in front and lead the working team. Sometimes BNS need to consider and focus on small work to make other's work continue. By setting up a clear and simply instruction, all workers can easily understand their work daily. By produce correct information and drawing, working team can did their work faster and in a better quality. Successful of any project in BNS are much depending to them thus BNS should thing the best solution to develop sub-contractor capabilities through VDP platform.			
117 : CIB6365	Good communication can minimize misunderstanding, develop good relationship and improve productivity of works. While contractors may be in a more suitable position to determine whether subcontractors have any "communication" problem which could affect the project outcomes, communication with the client and the project team is also needed in a multidisciplinary environment. Being the one who is responsible for the actual work, subcontractor are expected to keep the project participants informed of the potential problems and propose solutions to prevent any possible delays and reworks. In recent years, continuous and considerable effort has been made by the government and the industry to promote site safety via legislation, education and upgrading safety requirements. Good communication can minimize misunderstanding, develop good relationship and improve productivity of works. While contractors may be in a more suitable position to determine whether subcontractors have any "communication" problem which could affect the project outcomes, communication with the client and the project team is also needed in a multidisciplinary environment. Being the one who is responsible for the actual work, subcontractor are expected to keep the project participants informed of the potential problems and propose solutions to prevent any possible delays and reworks. In recent years, continuous and considerable effort has been made by the government and the industry to promote site			
118 : Coghlan - 2013 - What will I do Toward an existential ethics for first person action research practice	At this level we may ask what courses of action are open to us and we may review options, weight choices and decide. At this level we may ask what courses of action are open to us and we may review options, weight choices and decide.			
119 : Communicative empowerment of people with intellectual disability	moving to an advice-giving mode, selecting a specifi c and mutually shared problem and what might be the appropriate response moving to an advice-giving mode, selecting a specifi c and mutually shared problem and what might be the appropriate response			
122 : Constructing empowerment People, Processes, Participation and Profit	First, training is conducted to prepare individuals and teams on the concept of empowerment and, arm them with teamwork principles and problem solving techniques. Second, employees are provided with continuous 'follow-up' training on their own business related skills. First, training is conducted to prepare individuals and teams on the concept of empowerment and, arm them with teamwork principles and problem solving techniques. Second, employees are provided with continuous 'follow-up' training on their own business related skills.			
123 : Continous Improvement Partners (Executive Report)	Learn by doing approach · Balance between hard (tools and techniques) and soft (facilitation, communication, problem solving) skills · Certification / nationally recognised qualification · Centrally managed Learn by doing approach · Balance between hard (tools and techniques) and soft (facilitation, communication, problem solving) skills · Certification / nationally recognised qualification · Centrally managed			
124 : CONTRACTOR SELECTION BY THE MOST ADVANTAGEOUS TENDERING APPROACH IN TAIWAN	To counter this problem, an innovative tendering method, the Most Advantageous Tendering (MAT) approach, of the Government Procurement Law (Public Construction Commission, 1998) in Taiwan gives the procurement entity an alternative to select the best-qualified contractor without using the lowest cost tendering method. To counter this problem, an innovative tendering method, the Most Advantageous Tendering (MAT) approach, of the Government Procurement Law (Public Construction Commission, 1998) in Taiwan gives the procurement entity an alternative to select the best-qualified contractor without using the lowest cost tendering method.			
126 : Contribution of cost-benefit analysis to optimization of eco-design plants	Reducing the environmental impact is a multicriterion problem because optimization Journal of Engineering, Design and Technology Vol. 13 No. 2, 2015 pp. 334-346 ©Emerald Group Publishing Limited 1726-0531 DOI 10.1108/JEDT-02-2013-0010 must satisfy both production and environmental constraints. Reducing the environmental impact is a multicriterion problem because optimization Journal of Engineering, Design and Technology Vol. 13 No. 2, 2015 pp. 334-346 ©Emerald Group Publishing Limited 1726-0531 DOI 10.1108/JEDT-02-2013-0010 must satisfy both production and environmental constraints.			

128 : Cost benefit analysis of re-engineering the business process in Nigerian banks	Increases effectiveness. As all employees are aware of the processes to which they belong, they have a greater sense of responsibility. Helps to improve efficiency. Proper management and control of all business processes reduces the time lag between different processes, which otherwise is quite high causing delays. Reduces cost. With the proper management of processes, improved efficiency and quick delivery of products to the buyers the overall product costs are reduced resulting in cost saving for the organization in the long run. As the time lag of product processing between different departments gets reduced due to the application of business process reengineering, there are more meaningful tasks to be performed by employees. Top Management support is very important. The senior management must be personally involved and lead the project. Increases effectiveness. As all employees are aware of the processes to which they belong, they have a greater sense of responsibility. Helps to improve efficiency. Proper management and control of all business processes reduces the time lag between different processes, which otherwise is quite high causing delays. Reduces cost. With the proper management of processes, improved efficiency and quick delivery of products to the buyers the overall product costs are reduced resulting in cost saving for the organization in the long run.			
130 : Cost-Benefit_Effectiveness_Comparison Analyses _ The Abdul Latif Jameel Poverty Action Lab	A costbenefit analysis quantifies the benefits and costs of an activity and puts them into the same metric (often by placing a monetary value on benefits). A costeffectiveness analysis takes the impact of a program (e.g. percent reduction in the incidence of diarrhea), and divides that by the cost of the program, generating a statistic a cost comparison analysis will take multiple programs and compare them using the same unit A costbenefit analysis quantifies the benefits and costs of an activity and puts them into the same metric (often by placing a monetary value on benefits). A costeffectiveness analysis takes the impact of a program (e.g. percent reduction in the incidence of diarrhea), and divides that by the cost of the program, generating a statistic a cost comparison analysis will take multiple programs and compare them using the same unit			
131 : Critical Failure Factors in ERP Implementation	In order to examine the causes of failure in the ERP implementation process, an "ERP System Life Cycle" (Markus et al., 2000) perspective was adopted, that can help to look at what goes on (e.g., problems experienced and attempts at problem resolution) at each phase of the experience cycle (Markus et al., 2000). In order to examine the causes of failure in the ERP implementation process, an "ERP System Life Cycle" (Markus et al., 2000) perspective was adopted, that can help to look at what goes on (e.g., problems experienced and attempts at problem resolution) at each phase of the experience cycle (Markus et al., 2000).			
132 : Darmani, Hanafizadeh - 2013 - Business process portfolio selection in re-engineering projects	choosing high priority and suitable scenarios that reduce and control the imposed risk of reengineering project. choosing high priority and suitable scenarios that reduce and control the imposed risk of reengineering project.			
133 : Debela - 2010 - Business process reengineering in Ethiopian public organizations the relationship between theory and practice	managerial efficiency measures the speed that a manager accesses information and responds to a problem/opportunity in the form of instruction, report, decision, or answer. managerial efficiency measures the speed that a manager accesses information and responds to a problem/opportunity in the form of instruction, report, decision, or answer.			
134 : Design for Manufacturing of Composite Structures for Commercial Aircraft	Many of the benchmarked companies have a group that is used as a link between the design and production departments in order to handle and prioritise the different demands on the product. Many of the benchmarked companies have a group that is used as a link between the design and production departments in order to handle and prioritise the different demands on the product.			
136 : Preparation for LCS	the French has specifically told us what to do by recommending 1) improvement on existing process and 2) implement new processes. the French has specifically told us what to do by recommending 1) improvement on existing process and 2) implement new processes.			